

# ROADS and STREETS

HIGHWAYS • BRIDGES • AIR FIELDS • HEAVY CONSTRUCTION

A GILLETTE PUBLICATION

Gillette Publishing Co., 22 West Maple St., Chicago 10, Illinois • Accepted as Controlled Circulation Publication at Milwaukee, Wis.



Full speed for Boyd's scrapers after weather delay . . . page 28

Contractor Overhauls Year Around . . . page 35

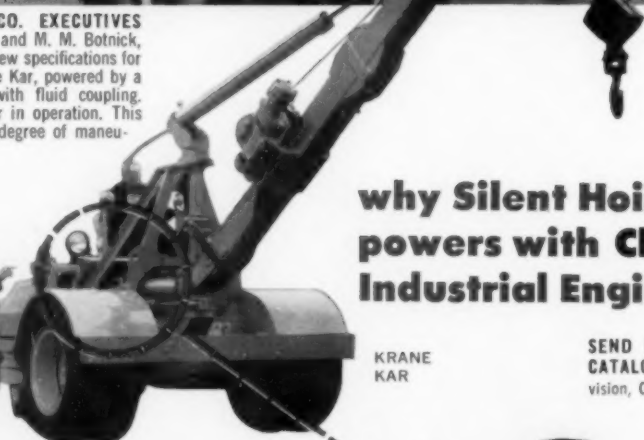
New Equipment for Ready-Mix Paving . . . page 58

Same Stockpiles Serve Three Uses . . . page 104

December, 1958



**SILENT HOIST & CRANE CO. EXECUTIVES**  
F. E. Flynn, Chief Engineer (left) and M. M. Botnick, General Sales Manager (right) review specifications for the company's latest model Krane Kar, powered by a Chrysler Industrial 30 Engine with fluid coupling. Below, they watch the Krane Kar in operation. This model features an even greater degree of maneuverability and boom flexibility.

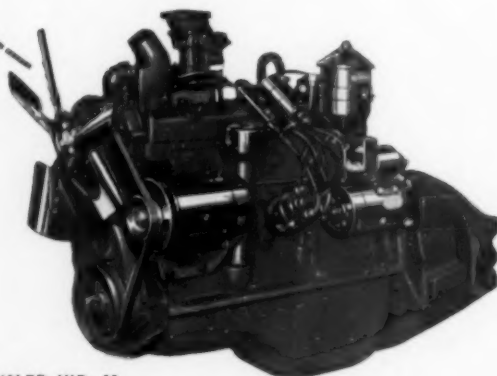


## why Silent Hoist & Crane Co. powers with **Chrysler** Industrial Engines

KRANE  
KAR

**SEND FOR 1958 INDUSTRIAL ENGINE  
CATALOG:** Dept. G12, Industrial Engine Di-  
vision, Chrysler Corporation, Detroit 31, Mich.

Silent Hoist & Crane Co. is a pioneer in the field of heavy-duty materials handling equipment. The famous KRANE KAR and LIFT-O-KRANE are designed for tough jobs and demanding conditions. That's why the company chooses rugged Chrysler Industrial Power. Equally important, Chrysler engines are available with fluid coupling to reduce shock load, prolong engine life. Experience has proved to Silent Hoist engineers, the superiority of Chrysler Industrial Engines. And Chrysler's reputation helps Silent Hoist sell customers—and keep them sold.



# **Chrysler**

## **INDUSTRIAL ENGINES**

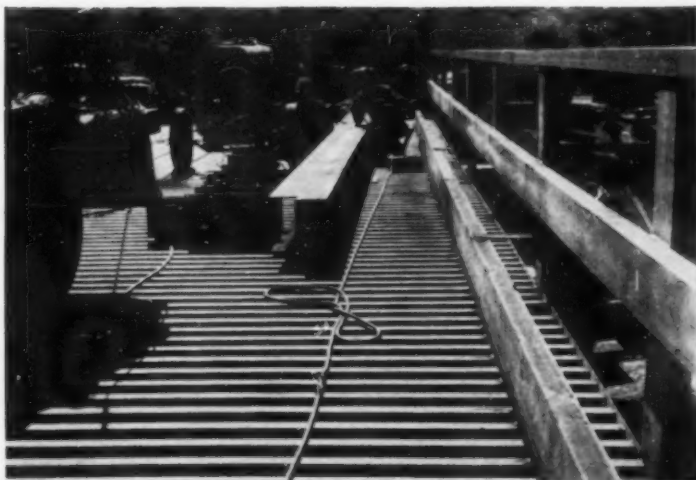
INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

**CHRYSLER IND. 30,**  
230 cu. inch displacement  
engine powers the Krane  
Kar. Heavier units are  
powered with Chrysler  
Ind. 33, 265 cu. inch  
displacement.

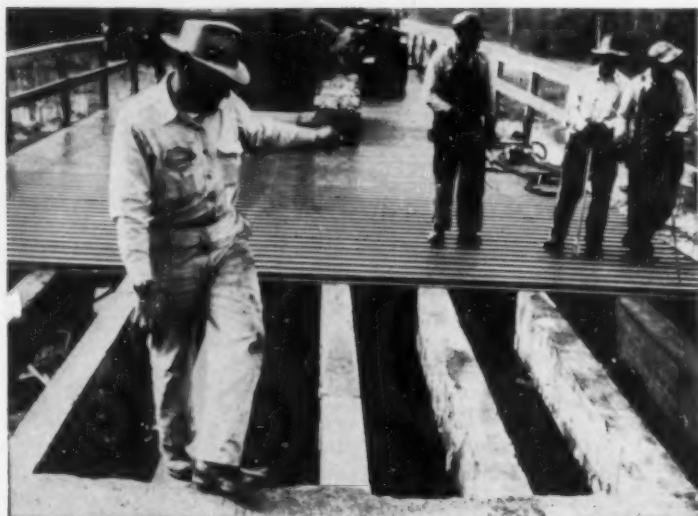
... for more details circle 245 on enclosed return postal card



# STEEL BRIDGE FLOOR Gives New Life to Old Bridges



The Bethlehem bridge floor over this bridge in Pennsylvania will require very little maintenance.



Steel bridge floor over the solid wood stringers of this rural Tennessee span resulted in a strong bridge.



Applying the first surface course on a rural Connecticut bridge. A second wearing course is also applied.

When the old flooring of these bridges needed replacing, the floors were stripped to the stringers, repairs made and new decks of Bethlehem Formed Steel Bridge Floor laid down. Result: strong, smooth, rattle-proof floors, requiring little maintenance.

In each case, Bethlehem Formed Steel Bridge Floor was easy to install. First, the worn planking was removed, then the Bridge Floor was carried from the stockpile, where it nested compactly in small piles, to the bridge. After proper positioning, the 2-ft-wide corrugated steel plates were welded to the stringers, and adjacent plates welded together. In the case of wooden stringers, the steel floor is easily attached with lag screws and washers.

After a surfacing material was applied, the new floors met all strength specifications of the American Association of State Highway Officials' standard specifications for highway bridges.

For complete information on Formed Steel Bridge Flooring, phone the nearest Bethlehem sales office.

**BETHLEHEM STEEL COMPANY**  
BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold  
by Bethlehem Pacific Coast Steel Corporation  
Export Distributor: Bethlehem Steel Export Corporation*

## BETHLEHEM STEEL



# ROADS AND STREETS

A GILLETTE PUBLICATION • DECEMBER, 1958 • VOLUME 101 • NUMBER 12

## NATIONAL AFFAIRS

- Washington News Letter..... 19  
—By Duane L. Cronk, Director, Highway  
Information Services, Inc.

## EQUIPMENT MAINTENANCE

- Holderman Overhauls 'em Centrally..... 35  
—Special staff report on a large multiple-job  
highway contractor's mechanical operation.  
Care and Maintenance of Wire Rope..... 71  
—By A. J. King, American Steel & Wire Division,  
U.S. Steel Corporation

## PAVING AND SURFACING

- Ready-Mix Producers Eye Bigger Road Yardages 58  
—By Glenway Maxon, Consulting Engineer.  
New mobile batchers, spreaders designed for  
truck-delivery, and other mechanical aids  
reviewed.  
Three Aggregates Do Triple Duty for  
Oklahoma Job ..... 104  
—For "I" project, stabilized base, binder and  
surface mix all produced from same three  
stockpiles.

## BRIDGES AND STRUCTURES

- Bolting Blitz Speeds Bridge Erection..... 45  
—Detailed production report on effectiveness of  
one of newest impact wrenches.

## COUNTY HIGHWAYS

- Delegates at Kiamesha Lake Conference Probe  
Greater County Responsibilities..... 52  
—By Duane L. Cronk

## HIGHWAY ADMINISTRATION

- Strong Medicine Prescribed for Pennsylvania's  
Road Management..... 46  
—The Automotive Safety Foundation's verbatim  
recommendations for new laws and control  
policies for this "spoils system" state.

## DEPARTMENTS

- Cover Scene..... 28  
Meetings Ahead..... 32  
Views and Comments..... 100  
—By H. G. Nevitt

## WHERE TO BUY IT

- Reader Inquiry Card..... Opposite Page 95  
New Products ..... 80  
Manufacturers' Literature ..... 99  
Clearing House ..... 113  
Advertisers Index ..... 126

## NEXT MONTH

### SPECIAL PRE-AED-CONVENTION ISSUE

Over 100 new products reviewed . . . Special report on how the Interstate Highway Program will add up in terms of grading, paving, structures and other types of construction . . . New analysis of state highway contract award progress . . . Also field report on S. J. Groves & Sons, Inc., 115,000-cubic-yard-per-day earthmoving achievement Bong Air Force Base.

Look for this nearby  
Goodyear dealer sign  
for better tire values  
— better tire care.



ARCOLE MIDWEST CORPORATION, Evanston, Ill., is its own biggest subcontractor. Building highways, bridges and other super-projects at a multimillion-dollar-a-year clip—Arcole does everything except electrical work and painting—everything from earth-moving, to concrete, to landscaping—entirely within its own organization! This takes a fleet of hundreds of trucks, many rubber-tired scrapers, an army of other equipment—and real "teamship"! Loader shown here rolls on SURE-GRIP by Goodyear



**GOODYEAR  
IS THERE!**



**TIRE INSPECTION** and maintenance never let down. Here, a new **HARD ROCK LUG**, by Goodyear, is being carefully checked in.

## Here's why Triple-Tough **3-T** Nylon Cord Tires move more yards for less:

**TRIPLE-TOUGH 3-T NYLON CORD**—a Goodyear exclusive—is the greatest tire *saver* in 23 years.

3-T Nylon Cord is so extremely resistant to stretch, water damage, bruise-break and blowout—that Goodyear tires built with it cut down-time to new **LOWS**.

**THIS SAVES YOU** the expense of idle men and equipment. Final tire cost can also hit new **LOWS** because 3-T Nylon Cord keeps tires strong for recap after recap.

Test this Goodyear performance—made possible by **TRIPLE-TOUGH 3-T NYLON CORD**—against any tires on any jobs. We'll rest our case on your findings. Goodyear, Truck Tire Dept., Akron 16, Ohio.

Buy and Specify Tubeless or Tube-Type



# GOODYEAR

**MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND**  
All-Weather, Road Lug, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

... for more details circle 257 on enclosed return postal card

### ALL 3-T NYLON CORD—TUBELESS OR TUBE-TYPE



Like steel, tire cord must be tempered to be tough. Goodyear's exclusive 3-T process, involving Tension, Temperature and Time, triple-temper cord to make it **TRIPLE-TOUGH**—to give you longest tire life, lowest cost-per-yard.

## On Penn Turnpike



## Cleveland 110 speeds drainage improvement

**The Job.....** installing 20 miles of drain tile for improvement of drainage along the Pennsylvania Turnpike between Perry and Beaver Interchanges.

**The Digging ....** in hard shale under 10 inches of tough aggregate in the shoulder of the pike.

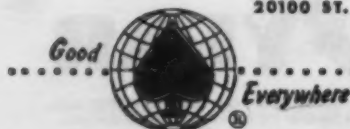
**The Record.....** the Cleveland boosted daily trench production 300%—to 2,400 feet per day. No other type of machine previously had been able to get more than 600 feet per day.

**The Contractor..** Harrison Construction Co., Pittsburgh

**accurate...fast...dependable...clean**  
—there's nothing like a Cleveland for trenching

**The CLEVELAND TRENCHER co.**

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO



... for more details circle 246 on enclosed return postal card

## ROADS AND STREETS

Devoted to the design, construction, maintenance and operation of highways, streets, bridges, bridge foundations and grade separations; the construction and maintenance of airports. Represents 66 years of continuous publishing in the highway field; combined with Engineering and Contracting and Good Roads Magazines, established in 1892.

HAROLD J. MCKEEVER, *Editor-in-Chief*  
V. J. BROWN, *Vice Pres. and Coordinator*  
CHARLES T. MURRAY, *Managing Editor*  
JOHN C. BLACK, *Associate Editor*  
H. K. GLIDDEN, H. C. PERSONS,  
H. G. NEVITT, C. R. SHUPE,  
*Contributing Editors*  
DUANE L. CRONK, *Washington Editor*  
JAMES R. CUMMINGS, *Assistant Editor*  
RENEE ARDEN, *Production Editor*  
GEORGIA ZOGRAFOS, *Editorial Secretary*



## GILLETTE PUBLISHING COMPANY

**Publication and Editorial Offices:**  
22 West Maple Street, Chicago 10, Ill.  
W. E. GILLETTE,  
*President*  
HALBERT S. GILLETTE  
*Vice President and Assistant Publisher*  
V. J. BROWN,  
*Vice President and coordinator*

**Chicago Office:** 22 West Maple St.  
Superior 7-1581

R. T. Wilson, *Gen. Sales Manager*  
Fred H. Bowes, *Representative*  
Morgan K. Cottingham, *Representative*  
E. Bender, *Clearing House Manager*  
J. L. Latta, *Production Manager*  
L. R. Vickers, *Circulation Manager*  
**New York Office:** 15 E. 40th St.,  
New York 10, N.Y., Oregon 9-7750  
F. A. Michel Jr., *Eastern Manager*  
**Cleveland Office:** 516 The Arcade  
Cherry 1-3497  
Ray Keine, *Manager*  
**West Coast Office:** 1126 Del Roy,  
Pasadena, Calif.: Sycamore 4-6828  
J. A. Osborne, *Manager*

## OTHER GILLETTE PUBLICATIONS

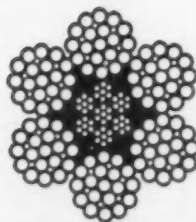
### Magazines

Rural Roads  
Street Engineering  
World Construction  
Camino y Construcción Pesada

### Prefiled Catalogs

Heavy Construction (U.S. & Canada)  
World Construction (International)  
Construction Pesada (Latin)





For **extra high** strength

USE

**WICKWIRE**

# DOUBLE GRAY

**...save money...increase safety**

In many operations where wire ropes occasionally operate near their breaking strength, it will pay you to switch to Double Gray. If you use Double Gray on your present equipment, under equal load conditions, you'll get a safer, more economical operation. That's because Double Gray's higher strength\* allows you to operate with a greater safety factor—resulting in longer rope life and less equipment downtime.

*\*Wickwire Double Gray Wire Rope is made of extra-improved plow steel. Fortified by an independent wire rope core of the same extra high strength steel, Double Gray rope has a 15% higher breaking strength than the catalog breaking strength of an improved plow steel rope with IWRC.*

For your free copy of our informative new Double Gray booklet, write to:

Advertising Department

The Colorado Fuel and Iron Corporation  
575 Madison Avenue, New York 22, N. Y.



**PRODUCT OF WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION**

**THE COLORADO FUEL AND IRON CORPORATION**—Albuquerque • Amarillo • Billings  
Boise • Butte • Denver • El Paso • Farmington (N. M.) • Fort Worth • Houston • Kansas City  
Lincoln • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Tulsa • Wichita  
**PACIFIC COAST DIVISION**—Los Angeles • Oakland • Portland • San Francisco

San Leandro • Seattle • Spokane

**WICKWIRE SPENCER STEEL DIVISION**—Boston • Buffalo • Chattanooga • Chicago  
Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

6401

**LOOK FOR THE YELLOW TRIANGLE**

... for more details circle 247 on enclosed return postal card



**SECOND LARGEST DAM IN THE U. S.**, at Glen Canyon, Ariz., will incorporate two of these 2,800 ft. diversion tunnels. Frazier-Davis equipment runs dependably, stays on the job, thanks to the Texaco Simplified Lubrication Plan.



## Glen Canyon tunnel borings nearing completion with Texaco Plan



**Only 6 lubes needed to keep  
Frazier-Davis equipment  
working dependably**

This is Frazier-Davis Construction Company's job: to bore the east side diversion and service tunnels, with a combined length of 2½ miles, through the walls of Arizona's Glen Canyon. It's a vital project, part of the Bureau of Reclamation's \$760 million development of 10,000 square miles of arid land. On a job as big as the Glen Canyon Dam, on-time completion of every phase is absolutely essential. And that puts a priority on dependable equipment performance.

**The Texaco Plan keeps equipment on the job**—at lowest cost—by handling all major lubricating problems with no more than six products. A combination of specialized and multi-purpose lubricants assures proper lubrication for each machine, with lower lubricant inventory and less

chance for mistakes. For Frazier-Davis, the Texaco Simplified Lubrication Plan has proved to be one of the most economical and dependable ways to get top performance from every piece of equipment.

Here are the lubricants Texaco recommended for Frazier-Davis:

**Texaco Ursa Oil Heavy Duty**—keeps engines clean, rings free, valves properly seated for full power.

**Texaco Regal Oil R&O**—prevents formation of rust and harmful deposits in compressor systems.

**Texaco Universal Gear Lubricant EP**—keeps differentials and transmissions running smoothly at low cost.



Bureau of Reclamation photos

**Texaco Marfak Multi-Purpose 2**—protects wheel bearings, chassis, water pumps against dust, moisture and wear.

**Texaco Track Roll Lubricant**—prolongs the life of crawler mechanisms.

**Texaco Rock Drill Lubricant**—guards against wear and rust whether drills are running or idle.

Ask a Texaco Lubrication Engineer to help you simplify your lubrication problems and reduce costs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48

States, or write:

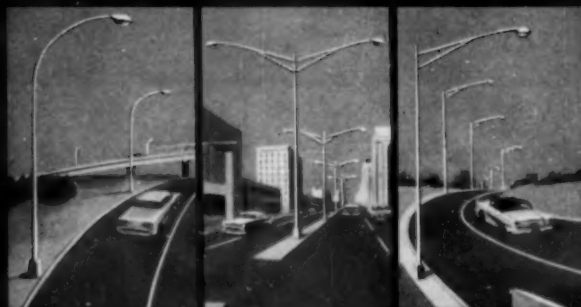
The Texas Company, 135 East 42nd Street,  
New York 17, N. Y.



**LUBRICATION IS A MAJOR FACTOR IN COST CONTROL**

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

... for more details circle 284 on enclosed return postal card



The New Standard in ALUMINUM LIGHTING STANDARDS



READ STANDARD, YORK, PA. • A DIVISION OF CAPITOL PRODUCTS CORPORATION



# TOUGH JOBS?



*you can't beat a* **GRADE-O-MATIC**

- Automatic multiplication of torque.
- Automatic application of power.
- Automatic regulation of speed.
- Correct balance of weight and power.
- More "push-power" at the blade.

All of which assures moving more dirt in faster work cycles.

Write for literature.

**THE GALION IRON WORKS & MFG. CO.**  
General and Export Offices, Galion, Ohio, U.S.A.

**GALION**  
ESTABLISHED 1907



**MOTOR GRADERS & ROLLERS**

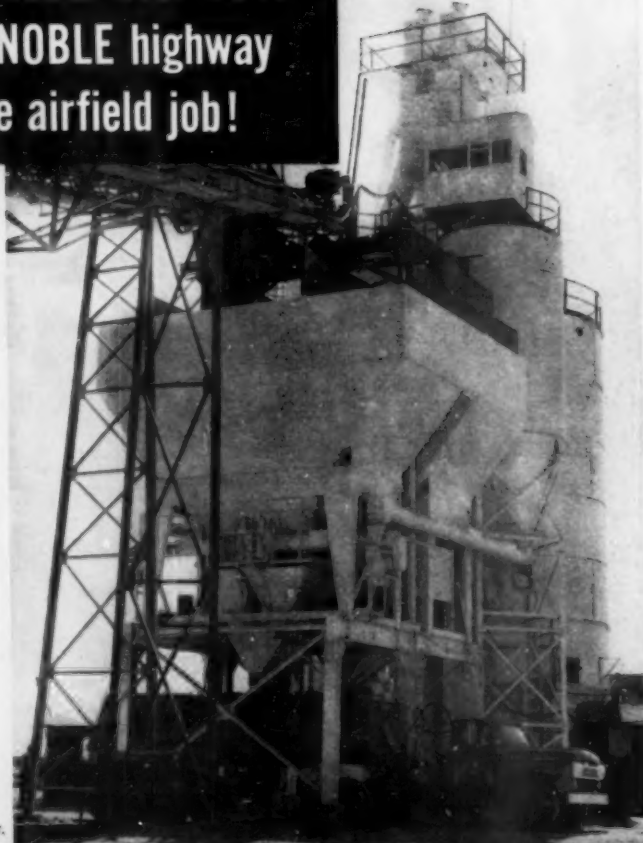
... for more details circle 254 on enclosed return postal card

# NOBLE

## Reduces set-up and labor costs over 50% in twin operation of two NOBLE highway batching plants on large airfield job!

Two NOBLE automatic batching plants in 1-stop arrangement are operated side-by-side to save considerable expense of separate stops for cement and aggregates in construction of Amarillo Air Force Base, Amarillo, Texas. A double driveway permits loading two batch trucks at the same time for simultaneous operation of two paving spreads, each with three dual drum pavers, on this \$93,000 cubic yard project. Each 1.4 cubic yard batch contains five materials — sand,  $\frac{3}{4}$ " rock,  $1\frac{1}{2}$ " rock, portland cement and natural cement. On a 17 second batch-cycle, twin plant weighs and delivers fourteen batches into two 7-compartment trucks in less than two minutes. Automatically controlled batcher dump cycle preblends cement and aggregates. Eliminates cover-up man and necessity for separate cement compartments in batch trucks. Two men operate this twin one-stop plant compared to four or more men for a pair of conventional 2-stop or 3-stop plants. Overhead storage for 500 barrels of portland and 500 barrels of natural cement. Two 550 barrel-per-hour elevators permit handling both types of cement simultaneously. Selector gates permit handling either type of cement by both elevators. Storage for 300 tons of aggregate. Unlike most large plants, this set-up can be separated when concrete requirements taper off. One unit can finish the airfield while the second is released for another paving job.

T. L. James & Co., Inc. and W. R. Aldrich & Co., general contractor.



## FASTEST FIELD ERECTION AT LOWEST COST!

- ✓ Pre-wired and sub-assembled at factory . . . no outside purchase of essential components.
- ✓ Fast set-up of section-on-section reduces costly crane time.



3 batchers (2 for aggregates, 1 for cement) weigh materials simultaneously for a single batch.



Cement may be discharged into a separate cement can when specifications require.

Write for Brochure  
Noble Company  
P. O. Box 1979  
Oakland 4, Calif.

**NOBLE COMPANY • 1860-7TH ST., OAKLAND, CALIF. • TEMPLEBAR 2-5785**

Branches:

CLEVELAND 16, OHIO—2095 Center Ridge Road, Edison 1-3426  
SEATTLE 9, WASHINGTON—518 First Ave., North, ATwater 4-4878  
EL SEGUNDO (LOS ANGELES), CALIF.—218 Richmond St.,

DALLAS 35, TEXAS—2512 W. Mockingbird Lane, Floodwood 7-1904  
NEW YORK 17, N. Y.—52 Vanderbilt Ave., ORegon 9-6475  
Export Distributor, Frazar International Corp., San Francisco

DISTRIBUTORS: BIRMINGHAM, ALA., Equipment Service Co., Inc. • PHOENIX, ARIZ., Western Machinery Co. • LOS ANGELES, CALIF., Smith-Booth-Usher Co. • DENVER, COLO., Western Machinery Co. • JACKSONVILLE, FLA., Groze-Dempsey, Inc. • MIAMI, FLA., Neff Machinery, Inc. • CHICAGO, ILL., Arrow Contractors Equipment Co. • INDIANAPOLIS, IND., Manwaring Machinery Co., Inc. • BOSTON, MASS., Hedge & Mattheis Co. • DETROIT, MICH., R. G. Moeller Co. • ST. PAUL, MINN., Berchert-Ingersoll, Inc. • BILLINGS, MONT., Saltz Machinery Co. • ST. LOUIS, MO., George F. Smith Co. • ALBUQUERQUE, N. MEX., Contractors Equipment & Supply Co. • SYRACUSE, N. Y., I. B. Smith, Inc. • STATESVILLE, N. C., Interstate Equipment Co., Inc. • CLEVELAND, OHIO, Wepco Equipment Co. • PORTLAND, ORE., Clyde Equipment Co. • HARRISBURG, PA., Highway Equipment & Supply Co. • PITTSBURGH, PA., Equipment & Supplies, Inc. • NASHVILLE, TENN., Peterson Machinery Co. • DALLAS, TEX., Lumby Machinery Co. • EL PASO, TEX., Border Machinery Co. • HOUSTON, TEX., Pearce Equipment Co. • SAN ANTONIO, TEX., Girard Machinery & Supply Co. • SALT LAKE CITY, UTAH, Arnold Machinery Co. • SEATTLE, WASH., Star Machinery Co. • SPOKANE, WASH., Western Machinery Co. • CASPER, WYO., Studer Tractor & Equipment Co., Inc. • CALGARY, ALB., Precision Machinery & Equipment, Ltd. • VANCOUVER, B. C., Westcoast Equipment, Ltd. • WINNIPEG, MAN., Huggard Equipment Co., Ltd. • TORONTO, ONT., Ontario Equipment & Supply, Ltd. • MONTREAL, QUE., Laurentide Equipment Co., Ltd. • OMAHA & NORTH PLATTE, NEB., Construction Service Equipment Co.

. . . for more details circle 271 on enclosed return postal card

Announcing the new Timken-Detroit®

# "center point" steer front axles

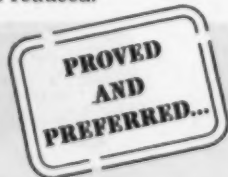
**for easier steering, greater safety,  
and reduced maintenance costs!**

Timken-Detroit's new "Center Point" Steer Front Axles give your heavy-duty vehicles the advantage of easy steering without the additional weight and cost penalties of power assistance.

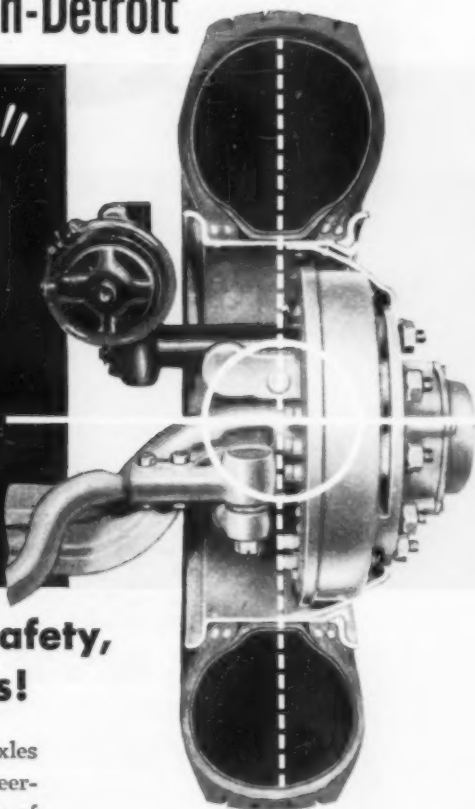
With Center Point Design the king pin is perpendicular to the ground, and is moved outward into the wheel. This puts the centerline of the tire and the centerline of the wheel on a relatively common plane. Because the king pin is in a true vertical position, it eliminates the heavy front end "load lifting" that is normally required when turning the conventional axle.

Steering resistance is thus greatly reduced, at no sacrifice in vehicle control. Drivers become less fatigued, safety is increased. And because road shocks and lateral pressures are transmitted more directly to the axle beam, tires and steering parts last longer . . . maintenance costs and downtime are reduced.

© 1958, R-S Corp.



**WORLD'S LARGEST  
MANUFACTURER OF  
AXLES FOR TRUCKS,  
BUSES AND TRAILERS**



## **TIMKEN-DETROIT CENTER POINT STEER FRONT AXLES**

### **Give You Three Major Advantages:**

**Easy steering**—less weight, lower cost than with power assistance!

**Safer operation**—better vehicle control and less driver fatigue!

**Reduced maintenance costs**—tires and steering parts last longer!

Plants at: Detroit, Michigan  
Oshkosh, Wisconsin • Kenton and Newark, Ohio  
New Castle, Pennsylvania



Products of **ROCKWELL-STANDARD Corporation**

# Now is the time to **DODGE**



New '59 Dodge Power Giants, "Job-Rated" for



**CONVENTIONAL** Models 400, 500, 600, 700, 800, 900—G.V.W.'s to 30,000 lbs.; G.C.W.'s to 65,000 lbs.



**TANDEM** Models T700, T800, T900—G.V.W.'s to 49,000 lbs.; G.C.W.'s to 65,000 lbs.



**C.O.E.** Models C500, C600, C700—G.V.W.'s to 25,000 lbs.; G.C.W.'s to 50,000 lbs.



# drive the new 1959 *Power Giant*

## CHANGES ... WHERE THEY COUNT!

### New performance! New comfort!

Look into the cab—look into the chassis! Wherever you look in the new 1959 Dodge trucks, you'll find changes that *mean something*. New convenience, for instance, in suspended brake and clutch pedals, and hydraulically operated clutch. New heavy-duty electrical system. Greater dependability. Increased G.V.W.'s on tandems. Concealed running boards on medium-tonnage models.

You'll find new cab comfort, too, and better heaters. Plus new instrument panels designed especially for medium- and high-tonnage requirements.

Ask your dealer about all the new Power Giant advancements. And about the new network of Dodge Truck Centers that let him give quick delivery of any Dodge truck to meet your exact needs. Plus hurry-up parts service. See him soon!

★ ★ ★

### Striking new Dodge low-tonnage models!

This spirited new Sweptline Pick-up leads a complete line of new 1959 Dodge low-tonnage trucks. Advanced models for every need, from 5,100 to 10,000 lbs. maximum G.V.W.



every trucking need



4-WHEEL-DRIVE Models W100, W200, W300, W300M, W500 — G.V.W.'s to 20,000 lbs.

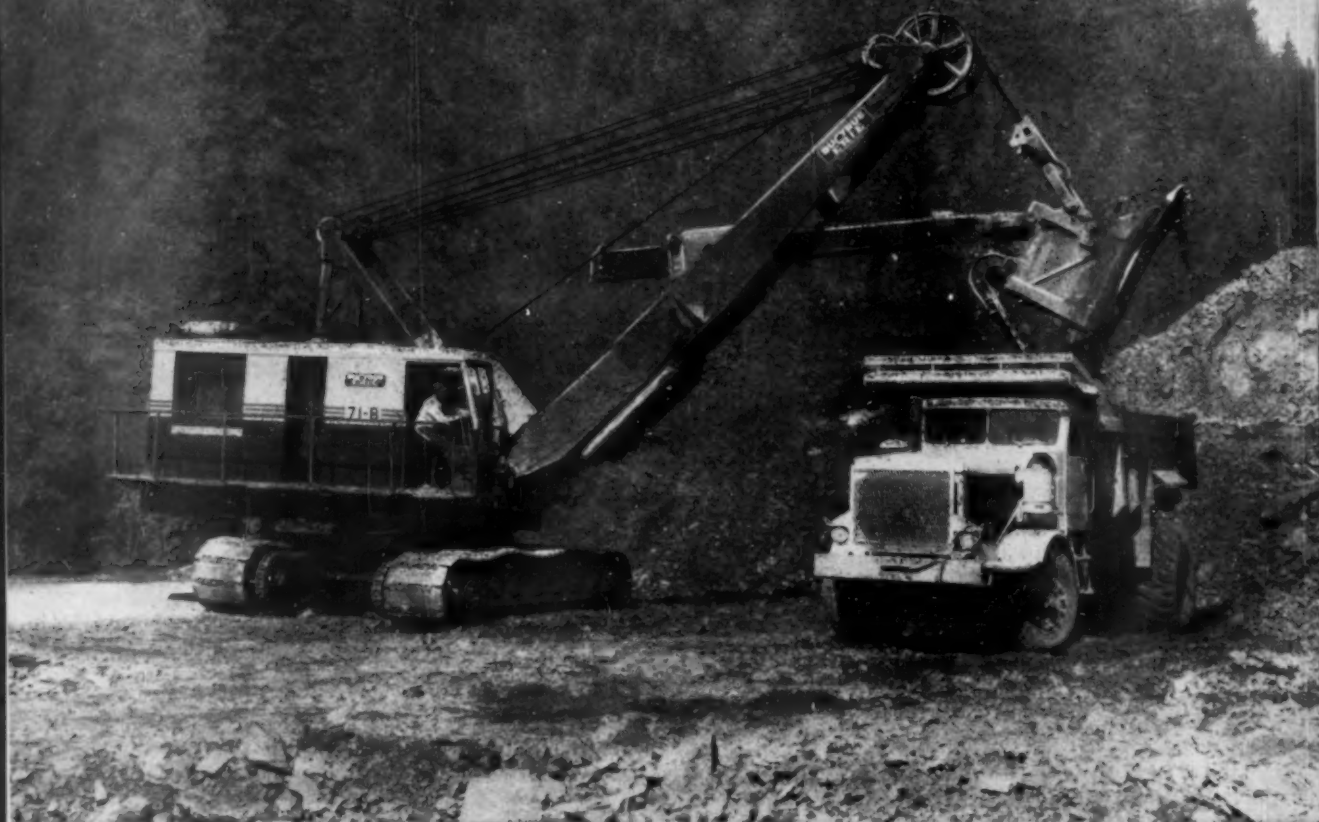


FORWARD-CONTROL Models P300 and P400 G.V.W.'s to 15,000 lbs.

... for more details circle 248 on enclosed return postal card

ROADS AND STREETS, December, 1958

**TODAY ...  
IT'S REAL SMART  
TO CHOOSE DODGE  
POWER GIANTS**



## Bucyrus-Erie 71-B Marks Trend On Biggest Idaho Road Job

The use of a Bucyrus-Erie 71-B shovel indicates a new trend toward bigger equipment in northwestern highway work. This rugged machine was chosen by the prime contractors, F. H. Slate Co. and E. C. Hall Co. of Portland, Ore., to load out rock, topsoil, and gravel in mountainous terrain 10 miles east of Coeur d'Alene, Idaho.

The project is the biggest roadbuilding job ever let by the Idaho Department of highways. Running through Fourth of July Canyon, this 7.2-mile segment of the Interstate System replaces a narrow, winding road long cursed by irate drivers. It's the first four-lane divided highway ever attempted in such mountainous country. Some 1,700,000 yards of excavation are involved.

In digging this tough material, the contractors profited from the 71-B's dependability. They saw it maintain a good pace in areas where other machines wouldn't have stood up. Full air control, not just air assist, on all operating clutches and steering and digging brakes provided full-feel control . . . reduced operator fatigue.

In addition to the 71-B, Bucyrus-Erie Company offers a complete line of excavators from  $\frac{3}{4}$  to 4 cubic yards. All machines are convertible to crane, clamshell, or dragline front ends. Machines up to 2½ yards are also convertible in the field to hoe front end. Get all the facts on these machines from your nearby Bucyrus-Erie distributor today.

458E58C

*A Familiar Sign . . .* **BUCYRUS-ERIE** *. . . at Scenes of Progress*

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

. . . for more details circle 243 on enclosed return postal card

Cedarapids'  
**NEWEST**  
Big Producer

# THE CHALLENGER



## THE MOST VERSATILE PLANT EVER DESIGNED

For 100% crushed or fractured product, you can feed the Challenger from the front (as shown in the flow diagram) to by-pass all sand and fines. Or feed it from the rear when the percentage of crush isn't important. With six different screen deck arrangements, you can produce a single product, add another size of rock, or chips, or sand, or produce all four . . . take off each size separately or blend them in the desired proportion.

The Challenger's triple deck horizontal vibrating screen is a compact 48" x 14' size for portability. Its efficient design assures extremely high capacity per square foot of screening area, eliminating the need for a large, bulky screen.

## TYPICAL PRODUCTION REPORTS

"My new Challenger is producing over 500 tons per hour of  $\frac{3}{4}$ " minus, with 35% crushing."

"By using a rock chute over the Challenger's screen, all sand is removed before it enters the circulating load. The plant is producing 220 tons of  $\frac{3}{4}$ " material per hour, crushing 65%."

"My Cedarapids Challenger has tough going in wet, sticky material, but it's turning out  $\frac{3}{4}$ " minus product at a 240 to 300 tph rate."

"I'm meeting 100% crush specifications with my Challenger and producing around 130 tons of  $1\frac{1}{4}$ " material per hour. A Cedarapids Twin Jaw Intermediate Crushing and Screening Plant is working ahead of the Challenger."



## THE PLANT WITH THE TWIN JAW PRIMARY

40% to 100% greater primary capacity!

Big tonnages—1 to 4 sizes!

100% crushed or fractured material—or blended

Now Cedarapids puts a Twin Jaw Crusher in this new portable plant to step up primary crushing 40% to 100% over plants with a single-jaw primary of comparable size.

The Twin Jaw combines overhead eccentric, force-feed design with *two synchronized movable jaws operating at high speed* to provide a high velocity jaw action for big capacity crushing of even hard material.

You can operate the Challenger with the primary jaw opening reduced . . . this means you can produce a greater percent of crushed or fractured aggregate. It reduces the circulating load and increases overall plant capacity, since a high proportion of material is crushed to finished size by the Twin Jaw alone. Material fed to the roll crusher can be smaller in size, thus increasing efficiency and capacity of the secondary crusher.

Maintenance is low on the Challenger. Twin Jaw design gives 5 to 8 times longer jaw life than single-jaw crushers because rubbing under pressure is practically eliminated. Think what this means in hard, abrasive material! And because the Twin Jaw crushes a much greater proportion of material than the roll crusher, wear on the secondary crusher is reduced.

## WHY WAIT? GET FULL DETAILS TODAY

You'll want to know more about this revolutionary new plant that's setting production records in State after State. There's a new Bulletin that describes every feature. Send for it today, or see your nearby Cedarapids Dealer.

**Cedarapids**  
MADE IN  
IOWA

## IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.

. . . for more details circle 265 on enclosed return postal card



## CARBIDE INSERT? or ALL STEEL?

**LOCATION:** Rocky Reach Dam, Wenatchee, Washington.

**OPERATING CONDITIONS:** Decomposed granite with few kidneys of quartz rock.

### "We drill 1400 to 2000 feet of blast hole per bit with TIMKEN® carbide insert bits"

*...Reports Goodfellow Brothers, Inc.*

**D**RILLING to relocate the Great Northern Railroad and Highway near Wenatchee, Washington, Goodfellow Brothers, Inc. selected Timken® carbide insert bits to drill blast holes in the decomposed granite and kidneys of quartz rock. Regrinding both gauge and flutes, they got 1400 to 2000 feet of blast hole from every bit.

That's the kind of performance you get with Timken carbide insert bits when conditions call for them. Their five front holes and deeper wing clearance help clear chips faster. You drill rock instead of chips.

But carbide insert bits may not always be your best bet. In ordinary

ground, you'll save more with Timken all-steel bits. With correct and controlled reconditioning, they give you lowest bit cost per foot of hole when you can drill out full increments of steel.

But whatever your drilling conditions and whatever type of bit you use, your drillers will save time and you'll save money with Timken bits. They're all interchangeable in the same thread series. Your drillers can change bits as fast as the ground changes—without changing drill steels.

All Timken bits are made of Timken electric furnace fine alloy steel. We're the only American maker of removable rock bits who takes that

extra step. And you get extra protection from a special shoulder union that protects threads from drilling impacts.

Get the right and most economical bit for your drilling jobs. Call or write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable: "TIMROSCO".



Timken threaded all-steel multi-use rock bit



Timken threaded carbide insert rock bit

# TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

... for more details circle 285 on enclosed return postal card

**your best bet for the best bit for every job**



# Washington News Letter



Exclusive - By Duane L. Cronk, Director, Highway Information Services

December 10, 1958

The Bureau of Public Roads is continuing its re-appraisal of contractor relationships with state highway departments. Last month it asked its field engineers to make a complete poll of advertising and bidding procedures as followed in the various states. Among other things the BPR wants to know:

- All about advertising and letting schedules and how they are publicized.
- If engineer's estimates are revealed in any form.
- If contracts are broken down into a range of sizes to utilize fully the potential bidding capacity of contractors in the state.
- If invitations or licensing laws are being utilized to restrict bidding.
- What kinds of proposal guaranties are being required.
- How the state handles opening of bids.
- What state policies are in respect to awarding when only one bid is received, when bid items are obviously unbalanced, when the low bid is over the engineers' estimate, when the amount of work bid by a contractor is in excess of his qualification limitation.
- What types of irregularities warrant rejection of a bid.

\* \* \*

BPR officials are determined to detect trends which might limit competition. They frown upon occasional efforts to restrict awards by artificial devices and to pre-qualify a large segment of firms out of the running.

One big reason for the good will which the National Highway Program enjoys on Capitol Hill is that it has successfully avoided any hint of collusion or favoritism, congressmen feel. Congressmen are amazed that a program involving billions of dollars should be so free of scandal, and they, too, attribute this phenomena to the effectiveness of safeguards which have been woven around federal-aid projects over a long period of years.

The "red tape" and numerous reports which the BPR has required of state highway departments on projects where 50% and 90% of the money is from Uncle Sam has chafed both state engineers and contractors in the past. But here in Washington the Bureau's checking and re-checking procedures are commended by the men who hold the purse strings.

(continued on next page)

The highway industry may be working with new materials in 5 or 10 years which they are not now even aware of. So saith Kenneth B. Wood, head of Civil Engineering at Purdue University, president of the American Society of Testing Materials, and dean of highway researchers. Wood told a Washington audience last month that the only reason the big highway program could get off the ground in the 50's is because of the rapid build-up of specifications development and standards development during recent preceding years. It was not many years ago, he pointed out that not a single test for identifying soils was being taught except in agricultural colleges.

Now, highway research is being pushed by major materials producers and independent organizations and such a rash of technical data is being created that new civil engineers need a solid background in chemistry and other basic sciences in order to utilize it. The current energetic push for new knowledge is bound to accomplish some break-throughs in the materials field, especially.

\* \* \*

The long-awaited federal standards for regulation of roadside advertising along the Interstate System have been released. They are a very liberal interpretation of Congressional intent and so written as to permit much more signing than was originally expected. First of all, about 25% of the 41,000-mile net will not come under the restrictions. This includes the 10,859 miles of superhighways built prior to July 1956 and segments of the System within urban, industrial or commercial areas.

Otherwise, the new regulations provide that no signs may be erected within 660 ft. of the edge of the right-of-way, with these important exceptions: (1) Directional signs erected in accordance with Interstate sign standards, (2) Signs advertising sale of real estate adjoining the highway or activities conducted on such sites, (3) Signs advertising activities within 12 miles of the road or down the road, (4) Signs in the interest of the traveling public, such as those advertising scenic attractions, camp sites, or opportunities for automotive service.

Although the size of commercial signs will be limited (13 ft. x 25 ft.), the advertising interests are not unhappy about the outcome of the controversy. States adopting the federal regulations - and they are not bound to - will qualify for a bonus of  $\frac{1}{2}$  to 1% of the cost of their Interstate mileage. AAA headquarters here reports it will push for state legislation to accept the standards.

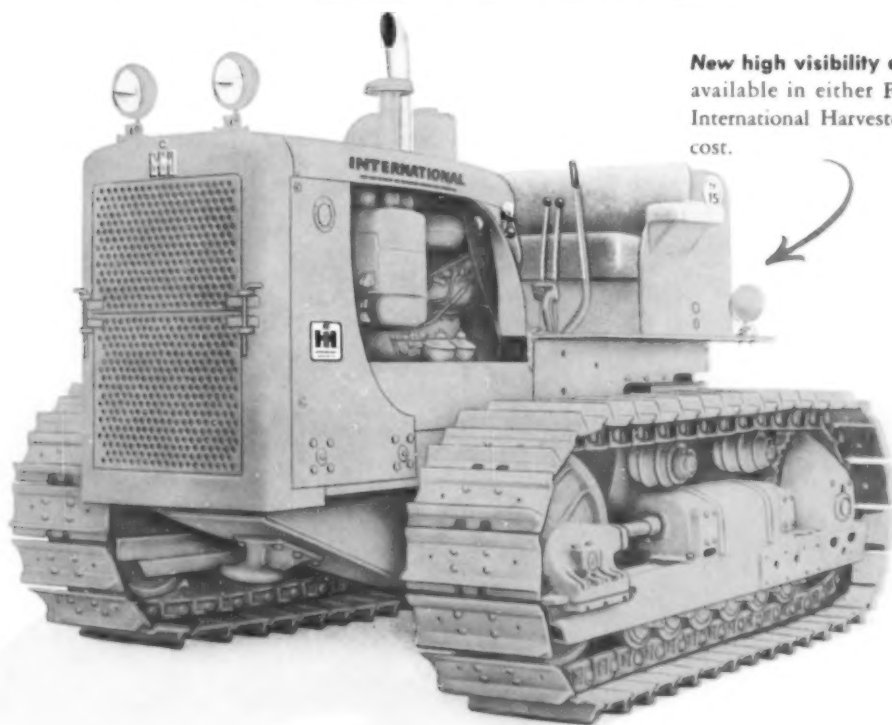
\* \* \*

A new BPR unit has been organized to continually study the development of the Interstate System as construction progresses around the country. Its job will be to encourage short-range planning and long-range planning by state highway departments so that the network will not grow just "like Topsy." The objective: To bring sections of the System into usefulness first where the needs are greatest. The federal engineers, under Fred Haxton, will encourage the states to plan project schedules months in advance and to assign definite goals for completion of financing, right-of-way acquisition and contract awarding.

Just off the press . . . another of the Highway Research Board's popular studies on equipment productivity. Committee Report No. 37 explores the causes of delays on paving with dual drum pavers. For more information, write to the Board at 1707 H Street, N.W., Washington, D.C.

# NEW International TD-15 tops 100-hp field...

*with exclusive power and control features!*



New high visibility color. Optionally available in either Federal yellow or International Harvester red at no extra cost.

**NEW**

**6-cylinder diesel power** . . . 105-hp fully-proven D-554 engine—full 20,500 lbs drawbar pull.

**NEW**

**6-speed full-reverse transmission** . . . 20% higher reverse speeds. A speed for every work or travel need plus fast "Shuttle-Bar" direction changing!

**NEW**

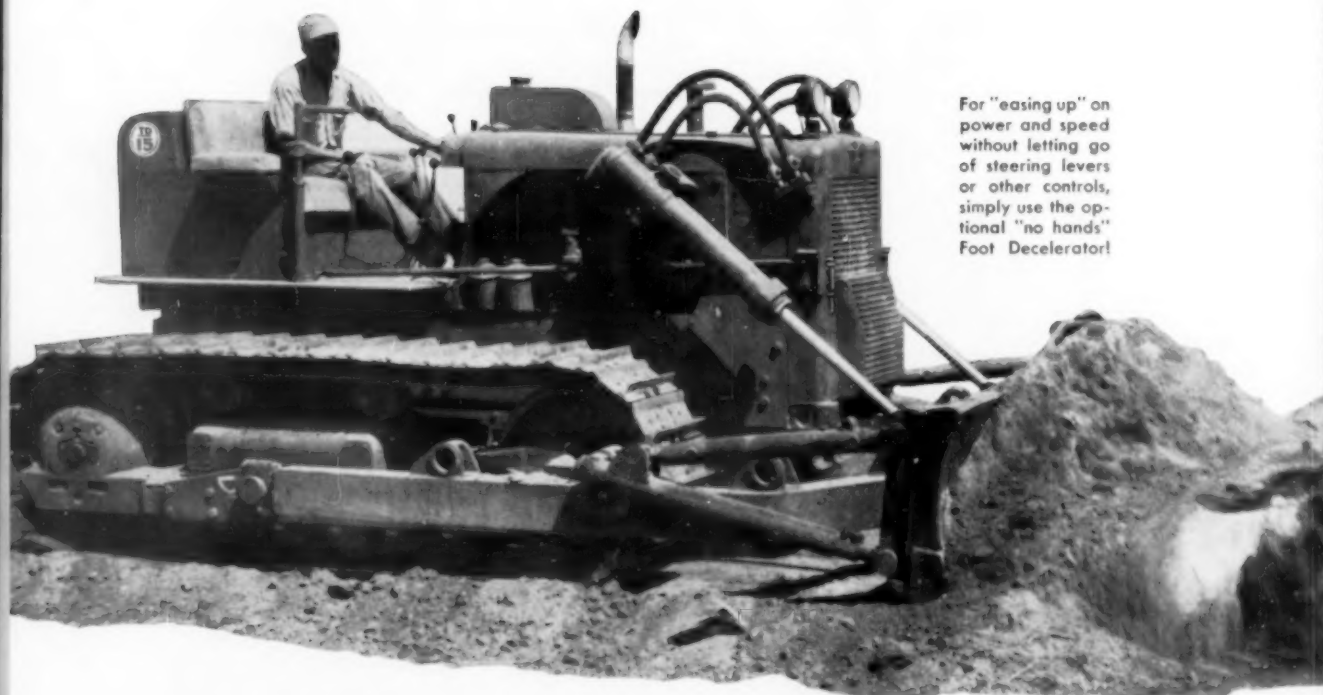
**Precision control**  
Foot Decelerator for instant speed changes—fast "Shuttle-Bar" forward-reverse travel.

**NEW**

**1,000-hour lube interval, heavy-duty track rollers**  
. . . heavy-duty, long-life bushing type, with extra capacity lube reservoir.

*...and here's the pay-off for you...*

# *You move in on...and speed up* **....with NEW TD-15**



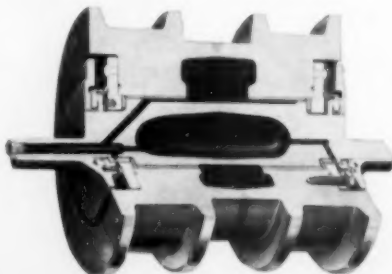
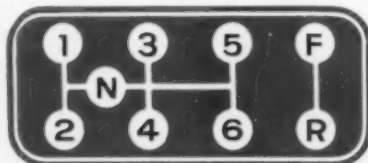
For "easing up" on power and speed without letting go of steering levers or other controls, simply use the optional "no hands" Foot Decelerator!

## **Exclusive six-speed "single stick" shift... forward and reverse "Shuttle-Bar"**

You shift through all six speed ranges of the new TD-15—forward or reverse—with a single lever. Shift pattern is planned for gear-changing ease and speed with a fast sweep of the hand—to give you instant use of the speed you need. To speed the work-cycle and take full advantage of fast shifting, you simply push or pull the "Shuttle-Bar"—to change TD-15 forward or reverse instantly.

## **1,000-hour lube interval, heavy-duty, track rollers**

Not just another "claim"... International now combines heavy-duty *bushing design*, exclusive cartridge-type *metal-to-metal seals*, and king-size lube reservoirs, to offer the industry the first heavy-duty type roller as standard equipment on the TD-15. Thick shells for safe build-up and exclusive pressure relief passages for flush-out and prevention of seal damage from power lubricators are part of this new design.





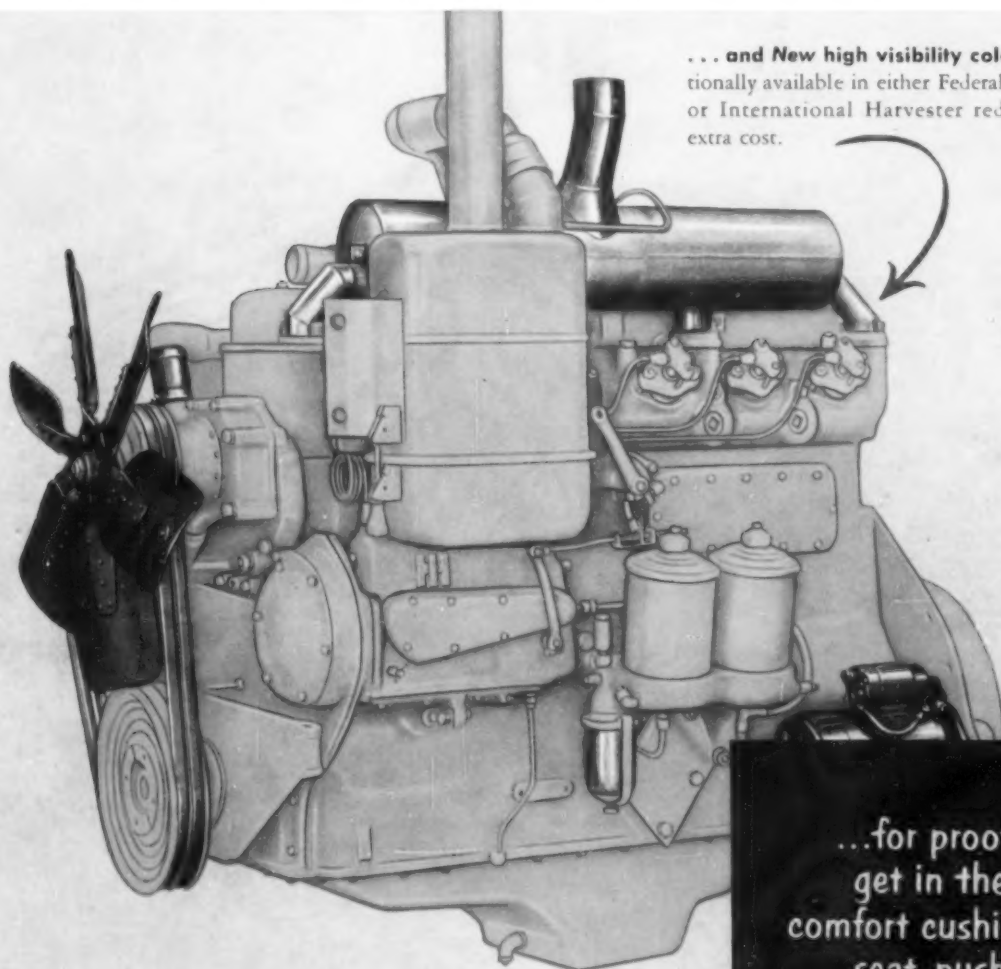
# *...a whole new range of jobs...* **capacity and control**

## **Smooth 6-cylinder... BIG 105 IH diesel horsepower**

You get 6-cylinder smoothness from this new International D-554 diesel engine that powers the new TD-15. This fully-proven power plant produces its 105 net hp at 1,650 rpm... features famous International 45-degree angle operation full-flow lubrication, closed pressurized cooling, exclusive twin plunger pump fuel injection system, fully counter-balanced crankshaft, positive valve rotators, and all-weather

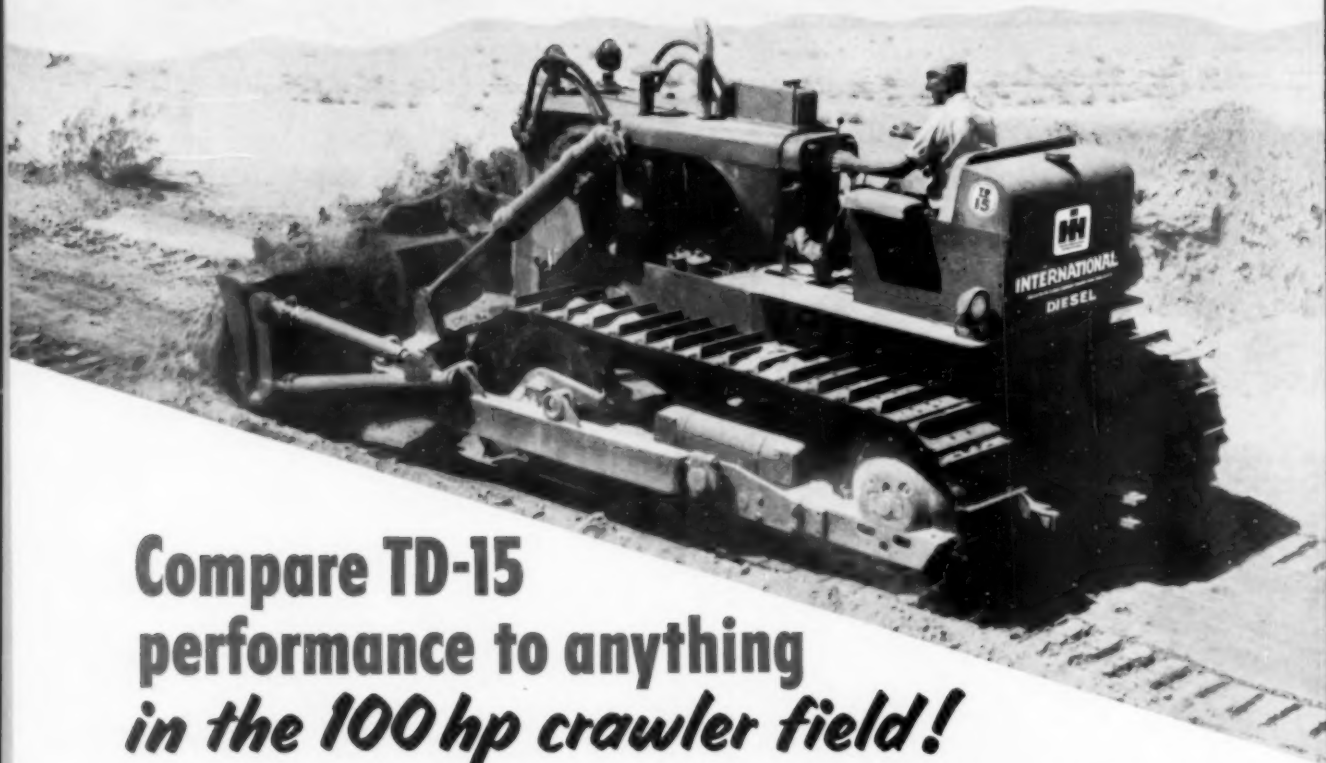
gasoline conversion starting. Here's an engine built for long life, big-capacity output!

**New power, strength, control, and reliability** features like these show you how and why the 105-hp TD-15 tops its field. You move in on a new range of heavy jobs—material-moving, land-clearing, hauling, loading, excavating, logging, mining—that no longer belongs to next-size-bigger crawlers!



**... and New high visibility color.** Optionally available in either Federal yellow or International Harvester red at no extra cost.

...for proof,  
get in the  
comfort cushioned  
seat, push  
the "button"...



## Compare TD-15 performance to anything *in the 100 hp crawler field!*

Prove to yourself you can move in on, and speed up, a whole new range of heavy jobs—with new TD-15 capacity and control. Put the TD-15 through its paces—compare *power, speed, capacity, and control* to anything else on tracks in the 100 hp field. The 6-speed full-reverse transmission and "Shuttle-Bar" will show you on-the-job how fast, easy, and profitable shuttle-cycle operations can be! Press the de-

celerator and see what a helper this feature can be for actually speeding up operations—by reducing de-clutching and shifting time! Measure sintered metal, dry-type clutch full power transfer efficiency and maintenance, ease and economy to any other crawler's clutch—wet or dry! See your International Construction Equipment Distributor for a new TD-15 demonstration!

**International®**



**Construction Equipment**

**International Harvester Co. • 180 N. Michigan Ave. • Chicago 1, Ill.**

**A COMPLETE POWER PACKAGE:** Crawler and Wheel Tractors . . . Self-Propelled Scrapers and Bottom Dump Wagons . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

# How you can keep ahead of severe winter storms —with Sterling Rock Salt

## ADVANCE PLANNING



1

*First*, be in contact with a weather service, so you know when storms are coming. *Second*, have your equipment spotted around your territory, loaded with straight Sterling Rock Salt and ready to go. *Third*, keep Sterling Rock Salt stockpiled at strategic locations. That way, you can spread rock salt early, before traffic gets tied up.

A generally accepted rate of application of straight Sterling Rock Salt for an average winter storm is 500 lbs. per mile of two-lane highway. At this rate, a truck that holds four tons of rock salt covers 16 miles before reloading. In a storm of major intensity in which snow has accumulated before crews have been able to spread rock salt, it may be desirable to plow to within  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of the pavement and spread straight rock salt at the same time.

## MORE SALT AS TEMPERATURE DROPS



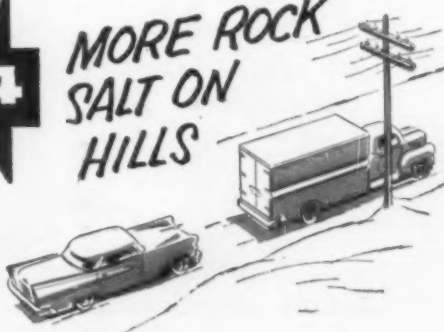
3

Straight Sterling Rock Salt has effective melting power at temperatures ranging to below zero! All that's necessary is to *increase* the amount of salt used as the temperature drops—just as it's necessary to use more fuel to heat your home when it gets colder outside. Many communities use about  $\frac{1}{3}$  more Sterling Rock Salt when the temperature falls below 20° F. (About 650 lbs. per two-lane mile.)

Because steep grades constitute a major traffic hazard, it is sound practice to double the quantity of rock salt applied. This gives bare pavements more rapidly, and provides better traction *immediately*. Grades of up to 19% have been made clear and safe just by using more straight Sterling Rock Salt. Make this point clear to your crews!

4

## MORE ROCK SALT ON HILLS



**FREE "BARE PAVEMENT MAINTENANCE" BOOKLET.** Ask your Sterling representative, or write for your copy soon. It's an up-to-date, comprehensive guidebook on all aspects of ice control. Can be really helpful in your winter program . . . whether it's municipal, county or state.

**INTERNATIONAL SALT COMPANY, INC., SCRANTON 2, PA.**

### SALES OFFICES:

Atlanta, Ga.	Chicago, Ill.	Memphis, Tenn.	Philadelphia, Pa.
Baltimore, Md.	Cincinnati, O.	Newark, N. J.	Pittsburgh, Pa.
Boston, Mass.	Cleveland, O.	New Orleans, La.	Richmond, Va.
Buffalo, N. Y.	Detroit, Mich.	New York, N. Y.	St. Louis, Mo.

**STERLING** "Auger-  
Action" **ROCK SALT**  
INTERNATIONAL SALT COMPANY, INC.



## EIMCO TRACTOR LOADER...

**Either Overhead or FEL — Provides the most economical means of digging and loading rock**

They are massive, heavy-duty, big bucket crawler loaders with job proven, exclusive features which insure high capacity, low maintenance and dependability.

If you want to keep your capital outlay down or have the edge in competitive bidding, call for an Eimco sales engineer to give you full details.



**THE EIMCO CORPORATION • SALT LAKE CITY, UTAH**

Research and Development Division, Palatine, Illinois

Process Engineers, Inc. Division, San Mateo, California

Export Offices Eimco Building, 51-52 South Street, New York 5, N. Y.

BRANCHES AND DEALERS IN PRINCIPAL CITIES THROUGHOUT THE WORLD



S-352

... for more details circle 252 on enclosed return postal card



## Want a permanent drainage structure?

Use Corrugated Metal

**How long** does a Corrugated Metal Drainage Structure last? Nobody can tell you for sure. Since the time the first Corrugated Metal Culvert was developed in 1894, many thousands of feet of Metal Drainage Structures have been installed, and some of the early structures are still in use. Often, individual structures outlasted the need for drainage, so they were removed and installed in other locations.

Information which has been developed from field inspections of existing drainage applications proves that Corrugated Metal Drainage Structures are durable from the important strength and material standpoint and will give long and satisfactory service in modern construction.



United States Steel Corporation—Pittsburgh  
Columbia-Genova Steel—San Francisco  
Tennessee Coal & Iron—Fairfield, Alabama  
United States Steel Supply—Steel Service Centers  
United States Steel Export Company



**Write for our free booklet** "USS Culvert Sheets" which tells you how to get the kind of service you can expect from Metal Drainage Structures made from USS Galvanized Culvert Sheets. It's loaded with information about selection of correct structure sizes, preparing foundations and installation procedure.

For your free copy, write to United States Steel Corporation, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

*USS is a registered trademark*

# *We keep pace with* **MODERN VENTURES!**



Striking modern design of new passenger terminal for TWA—Trans World Airlines at New York International Airport.

Contractors expect their bonds and bonding service to keep pace with modern projects they cover.

You'll find it that way when you bond with THE FIDELITY AND CASUALTY COMPANY OF NEW YORK.

Decades of broad experience and specialized know-how in all phases of construction bonding is readily available to you through THE FIDELITY AND CASUALTY COMPANY agents. You will find one nearby to serve you.

## The Fidelity and Casualty Company of New York

"Writing Bonds Since 1876"

a member company of

**America Fore  
Loyalty Group**

... for more details circle 233 on enclosed return postal card

## Big Earth Yardage Moved Despite "Wettest" Summer

(See Front Cover)

The day was bright and sunny on August 1, 1958, when the cover scene on this issue of Roads and Streets was taken. And about time. Due to the unusually wet, rainy winter, spring and early summer, this was only the 32nd working day in seven months for the contractor, Boyd Construction Co., of Granada, Miss., in the firm's struggle to make progress on the Interstate relocation paralleling U.S. 51 near Senatobia, Mississippi.

On this job entailing over two million cubic yards of earthmoving, luck had finally turned. The day previous, on July 31, their scrapers were well into their stride in a borrow pit, and had moved 660 loads in eight hours on a 7,500-ft. round-trip haul with minor grades. On one other day, the outfit did even better with 910 loads of brown clay averaging 19 cu. yd. loose (15 cu. yd. pay measure) with their equipment combination. These yardages were accomplished with 10 Allis-Chalmers TS-360 scrapers (nine actually working that day), 2 Cat DW21's with No. 470 pans, 4 Allis-Chalmers HD-21 tractors push-loading, a Cat D6 and D7 dozing and Cat 12 motor grader on the haul road and spreading.

## Steel Institute Elects

H. Buckley Dietrich, president of Dietrich Brothers, Inc., Baltimore, Md., was elected president of the American Institute of Steel Construction, national association of the structural steel fabricating industry.

Other officers are 1st vice president, James M. Straub, president, Fort Pitt Bridge Works, Pittsburgh, Pa.; 2nd vice president, Harold G. Lewis, president, Flint Steel Corporation, Tulsa, Okla.; secretary, M. Harvey Smedley, New York City; treasurer, Erwin P. Stupp, president, Stupp Brothers Bridge & Iron Company, St. Louis, Mo.

L. Abbe Post, New York City, who has been executive vice president since 1947, was re-elected to the top administrative position.

● Nearly 88 percent of all intercity travel is done by automobiles. Over 79 million licensed drivers, of which 40 percent were women, drive an average of 8,070 miles annually for a record total of 643 billion miles.

NOW... from Link-Belt Speeder

# three NEW ZEPHYRCRANES

*plus the revolutionary  
"HI-LITE" boom*

Priced to keep you competitive with today's marginal bidding—yet designed to pay off where most work is done—with long booms at extended radii.

These Link-Belt Speeder heavy-duty truck-cranes offer more important features as standard equipment than any other truck-cranes, such as Speed-o-Matic power hydraulic controls, independent rapid boom-hoist with boom-lowering clutch, pin-connected booms, swing brake. Optional features include: reversing clutches for either or both main operating drums, powerful third drum, hydraulic counterweight removal jacks, hydraulic outrigger jacks and beams, four axle-carriers, plus many other features.

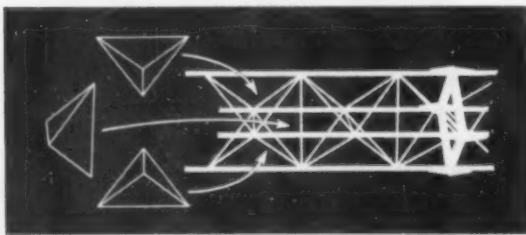
For details and new catalogs, see your Link-Belt Speeder distributor or write Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

14,900

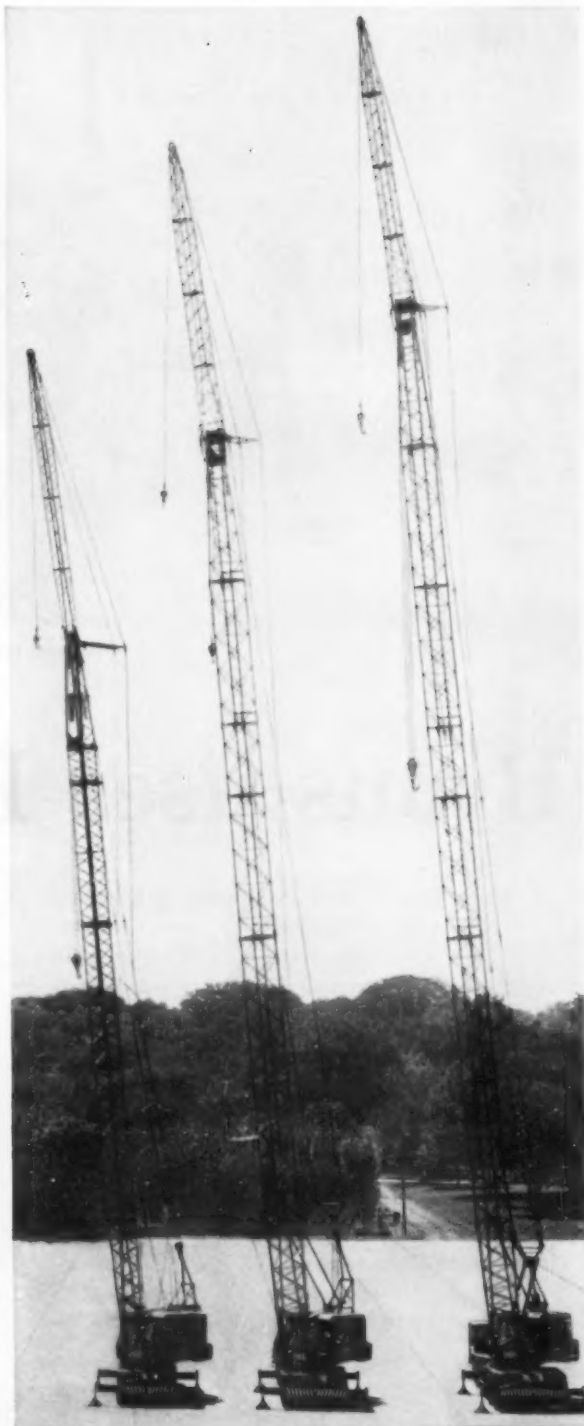
**NEW 30-TON HC-88A** — Unassisted, lifts and handles up to 160' of new "HI-LITE" boom and jib. The only truck-crane in its work range 8 ft. wide.

**NEW 35-TON HC-98A** — Unassisted, lifts and handles up to 180' of new "HI-LITE" boom and jib.

**NEW 40-TON HC-108A** — Unassisted, lifts and handles up to 200' of new "HI-LITE" boom and jib.



Revolutionary "HI-LITE" booms feature new tetrahedron design that virtually eliminates the whipping, twisting and deflection normally experienced with long booms. Sets of internal cross-braces meet at common points along the 44" square box section forming scores of tetrahedrons (pyramid-like structures) . . . provide maximum resistance to stress in every direction. High-strength steel tubing is lightweight . . . permits longer booms than previously possible.



## LINK-BELT SPEEDER



21 crawlers



6 truck cranes



4 self-propelled

**It's time to compare . . . with Link-Belt Speeder**

. . . for more details circle 268 on enclosed return postal card



Payloads keep on the move with this Huber-Warco grader clearing the way.

## Bruns uses H-W Graders

When Bruns Coal Company, a highway contractor of Zanesville, Ohio, got the contract for a six-mile section of the new Ohio Freeway, they put two of their Huber-Warco graders on the job.

The Bruns contract is for a portion of the new road that will link Cincinnati and Conneaut, Ohio. This highway has been designated as Ohio State Route 1, and will be a vital link in the nation's system of federal roads.

A total of two million yards of dirt will have to be moved on this project before the completion date of August, 1959. A Huber-Warco 5D-190 and a 4D-115 are constantly busy keeping the haul roads clear, and trucks on time.

One big cut in this section is 40 feet deep and 2,000 feet long. The largest fill is 70 feet

deep and extends 1,000 feet on each side of a bridge over Conneaut Creek. Bruns will also handle two and one-quarter miles of ramps and interchanges.

A six-inch gravel base will be applied to help the drainage of water from under the road. The concrete pavement will be poured to a ten-inch depth. The dual lanes of this highway will be 24 feet wide, separated by a 54 foot median. Each lane will have five foot stabilized shoulders.

Bruns makes sure that their equipment is always in top shape to deliver the most work. To minimize downtime on the job, all equipment is serviced between the two 10-hour shifts. On this job they are working a six-day week.

---

# Huber-Warco Company

MARION, OHIO



# Huber-Warco on the job

---

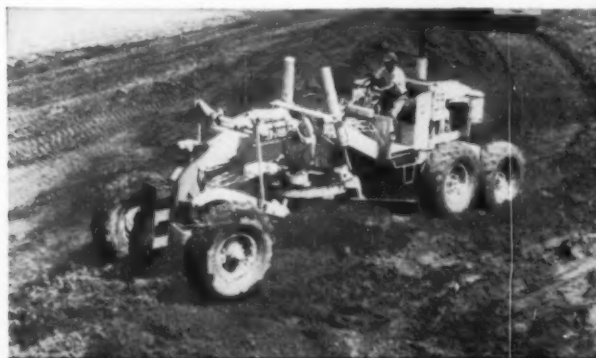
*"We own four Huber-Warco graders and know from experience that they are tough machines. We can depend on them for all types of grading work."*

*Lloyd Bruns, Vice President  
Bruns Coal Company*

## on Ohio job

When asked for his comments on the Huber-Warco 5D-190, Edgar Matheney, the operator stated, "It's the best grader I've seen for haul roads. The torque converter and power-shift transmission really let the machine move dirt fast." He continued, "Its extra length and weight make it very good on bank sloping. It's sure dependable."

Why not investigate the merits of a Huber-Warco motor grader for your construction jobs. The BONUS features of Huber-Warco graders give you more machine for the money . . . more work done faster . . . and dependability.



Whatever the grading assignment, Huber-Warco motor graders work harder and faster.



Terms up to 36 months and rentals available . . . contact your Huber-Warco distributor.



TANDEM ROLLERS



MOTOR GRADERS



MAINTAINER

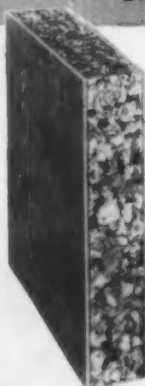


3 WHEEL ROLLERS

## SERVICISED

# JOINT FILLERS for Concrete Paving

Three widely used Servicised Premolded Joint Fillers are briefly described below. Complete details, specifications and samples of any particular type or types are available on request.



## KORK-PAK®

An exclusive Servicised development KORK-PAK consists of asphalt and granulated cork formed between two sheets of asphalt saturated paper.

### advantages

1. It is non-extruding
2. Recovers more than 80% of original thickness after compression
3. Low moisture absorption
4. Readily handled without breakage
5. Least expensive non-extruding type

### recommended uses

A general purpose joint filler, particularly for highway work where the top of the joint can be thoroughly sealed with Para-Plastic.

## ASPHALT

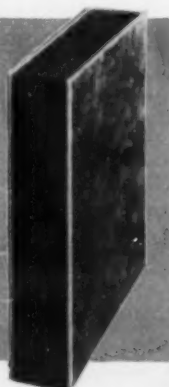
A composition of asphalt, vegetable fibre and a small percentage of finely divided mineral filler, formed between two sheets of asphalt saturated paper.

### advantages

1. Forms an easily compressible cushion
2. Is highly waterproof
3. Low in cost

### recommended uses

For interior concrete floor construction where black color is not objectionable, and most extensively in the formation of contraction joints in concrete construction where a  $\frac{1}{4}$ " or  $\frac{3}{8}$ " thickness is often used.



## FIBER

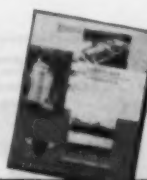
Cane Fiber Joint Filler is a non-extruding, resilient bituminous material consisting of cellular cane fibers securely bound together and uniformly saturated with a suitable bituminous binder.

### advantages

1. It is non-extruding
2. Ordinary carpenter saw can be used for cutting
3. Lowest cost non-extruding type
4. Recovers more than 70% of original thickness after compression

### recommended uses

An all-purpose joint filler extensively used for highway work where the upper portion of the joint can be thoroughly sealed with Para-Plastic Bituminous Rubber sealing compound. The complete line of Servicised Joint Fillers is described in the Servicised Catalog. Write for your copy.



## SERVICISED PRODUCTS

CORPORATION

6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

... for more details circle 278 on enclosed return postal card

## Meetings

HIGHWAY RESEARCH BOARD — Annual Meeting, Sheraton-Park Hotel, Washington D.C.; Jan. 5-9, 1959.

AMERICAN ROAD BUILDERS ASSOCIATION — 57th Annual Convention and 5th Annual Highway Materials and Services Exhibit, Dallas Memorial Auditorium, Dallas, Texas; Jan. 19-22, 1959.

ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. — Annual Meeting, Americana Hotel, Miami Beach, Fla.; Jan. 19-23, 1959.

ASSOCIATED EQUIPMENT DISTRIBUTORS — 40th Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.; Jan. 25-29, 1959.

ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS — Annual Meeting, Brown Palace Hotel, Denver, Colo.; Jan. 26-28, 1959.

NATIONAL CRUHEE STONE ASSOCIATION — Annual Meeting, Americana Hotel, Miami Beach, Fla.; Jan. 26-30, 1959.

ELEVENTH CALIFORNIA STREET AND HIGHWAY CONFERENCE, University of California, Berkeley, Calif.; Jan. 28-30, 1959.

NATIONAL BITUMINOUS CONCRETE ASSOCIATION — 4th Annual Convention, Americana Hotel, Miami Beach, Fla.; Feb. 2-5, 1959.

AMERICAN CONCRETE INSTITUTE — Annual Convention, Statler Hilton Hotel, Los Angeles, Calif.; February 23-26, 1959.

## Technician Job Classes Sought in Oregon

The Oregon state highway department reports that a series of Highway Technician job classifications is being planned with the approval expected of the state civil service department.

The new classes are being sought in the belief that the clarified job classifications would more properly reflect the duties and responsibilities of the various technicians versus engineering positions; and also would set up a more realistic standard for employment and promotion.

● Diversion of state highway revenues to non-highway use is far from ended, according to the National Highway Users Conference. Over \$304,000,000 was diverted from state programs in 1957.



**"Model 12...  
Finest track-type shovel ever  
designed"** says R. L. Shepherd,  
Shepherd Construction Co., Muscatine, Iowa



"On the basis of its performance for us, we are looking forward to buying another Model 12 'PAYLOADER' soon", says the owner of Shepherd Construction Co. "Because of its great versatility, it has our recommendation as a money-making tool for both large and small contractors."

"We've used our Model 12 on every conceivable type of job since January, 1957, and found its performance excellent in every way. Of all the wonderful improvements on the Model 12, we feel its center seating takes the spotlight. It makes the machine ride easy and provides excellent vision."

"The Model 12 has the finest bucket action we have ever used. Excavating from a solid bank, we've loaded out 8 to 9 yd. trucks with 3 passes in 2-minutes time. The normal bucket load is always 2-yds. plus. Its flotation is exceptionally good because the loaded bucket is balanced by the rear-mounted engine. All this along with its fine operating diesel engine, large torque-converter and power-shift transmission (master clutch eliminated) enables the Model 12 to give us a production record of which we are very proud."

FOR PROOF — ask for a Model 12 demonstration or write for your copy of an informative 8-page bulletin. The Frank G. Hough Co., Libertyville, Ill.

# HOUGH®



THE FRANK G. HOUGH CO.  
LIBERTYVILLE, ILLINOIS  
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY



THE FRANK G. HOUGH CO., 768 Sunnyside Ave., Libertyville, Ill.  
Please send more data on the new Model 12 "PAYLOADER" to:

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

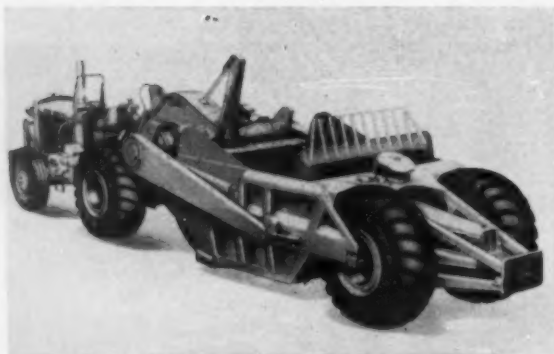
State \_\_\_\_\_

12-C-3



**PROJECT PAYDIRT** pays off for you...

# NOW 2 SCRAPERS FOR THE DW20!



## The popular LOWBOWL NO. 456

18 cu. yd. struck  
25 cu. yd. heaped

To broaden the profitable uses of the high-speed DW20 four-wheel Tractor, Caterpillar now offers a big new LOWBOWL Scraper—the No. 482, rated at 24 cu. yd. struck, 34 cu. yd. heaped.

The popular No. 456, rated at 18 cu. yd. struck and 25 cu. yd. heaped, remains in the line. As a result, this provides you with a choice of two sizes of rugged, heavy-duty scrapers to better match the DW20 to the material and haul conditions on your job.

In short, here's where each scraper will fit best for maximum production at lowest cost per yard: The No. 482—in good loading conditions and haul roads of minimum grades and low rolling resistance. The No. 456—on adverse grades and average-to-high resistance haul road conditions.

In addition to the Cat No. 482 and No. 456 Scrapers, a complete Athey wagon line is available for use with the DW20. Whatever the job, you'll find the right earthmovers for it at your Caterpillar Dealer. See him today for complete facts about the big new No. 482.

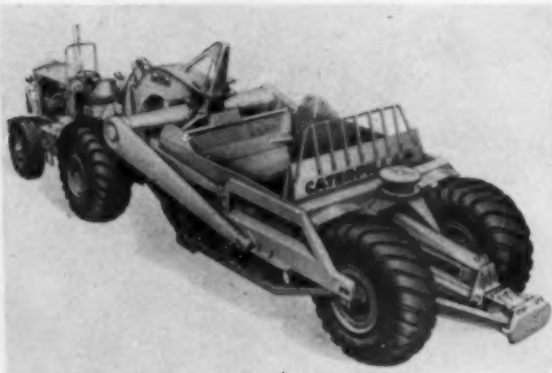
Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

### PROJECT PAYDIRT:

Caterpillar's multi-million-dollar research and development program—to meet the continuing challenge of the greatest construction era in history with the highest production earthmoving machines in the field.

## The new LOWBOWL NO. 482

24 cu. yd. struck  
34 cu. yd. heaped



## Additional facts about the No. 482

Like all developments of Caterpillar's PROJECT PAYDIRT, the No. 482 has been thoroughly tested in the field. Its high capacity offers the increased production essential to profitable performance on today's big jobs. It uses 33.5 x 33 (26-PR) tires. It is cable operated for fast, accurate control. Its three-piece "Spacesaver" draft frame can be disassembled to provide a shipping width of only 11' 6"—three inches narrower than the No. 456. Its new bowl lift design and new push block arrangement increase loading and dumping efficiency. And its sturdy, simplified construction delivers many hours of trouble-free operation with minimum maintenance.

# CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**DIESEL ENGINES • TRACTORS • MOTOR  
GRADERS • EARTHMOVING EQUIPMENT**

**BORN OF RESEARCH  
PROVED IN THE FIELD**

... for more details circle 244 on enclosed return postal card



### Equipment Maintenance

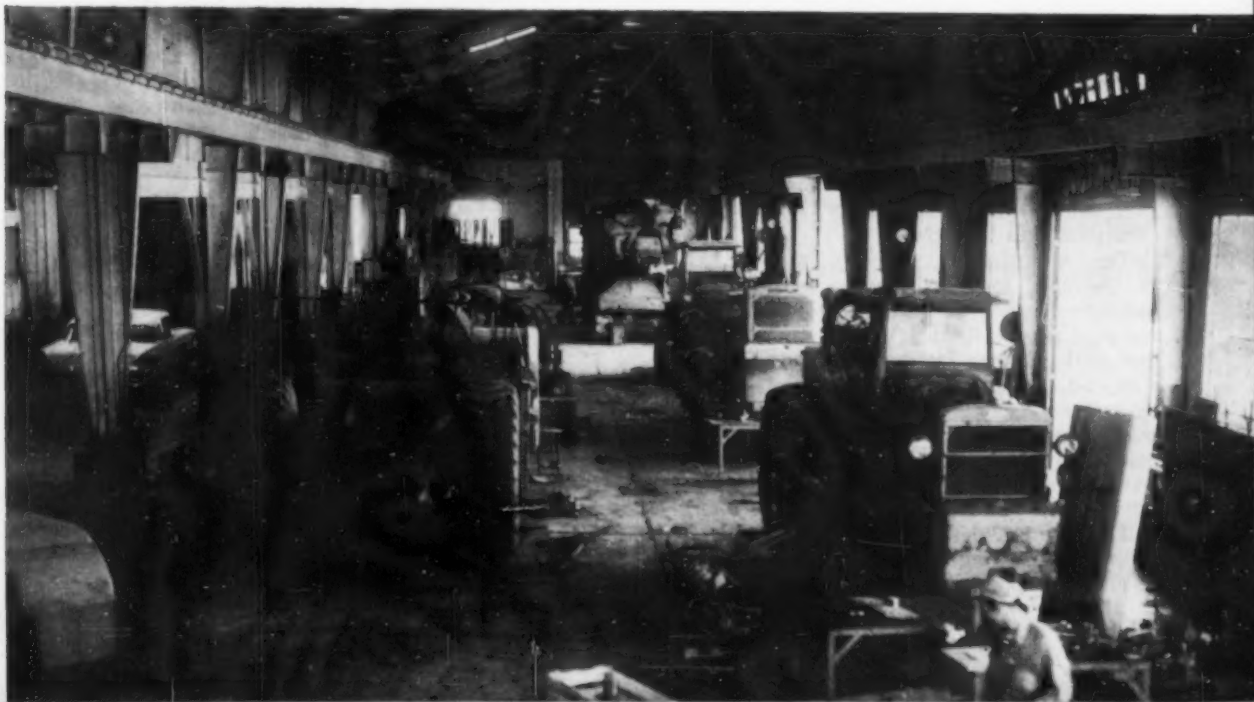
# Holderman Overhauls 'em Centrally

*Self-contained headquarters shop and busy trailer shuttle are part of this contractor's scheme for handling a large volume of Ohio highway work.*

Some contractors overhaul equipment in field shops before moving out. Others save as much mechanical work as they can for winter, and then handle it with minimum facilities. These notes concern a contracting group which finds it profitable to have a large, well equipped and staffed central shop, and to do overhauling the year around for its 200-mile radius of operation.

V. N. Holderman & Sons, Inc., of Columbus is the parent firm in a group of companies typifying a trend in multiple-job road and bridge contracting today. The business was founded 15 years ago by V. N. Holderman after personal experience as an outstanding job organizer and manager for other contractors. Today the

**Volume Operation** Looking through the 45 x 250 ft. main bay—overhauls of heavy equipment.





**Acres of Yard Space** In the spacious equipment storage yard, back of the shop—one of several “streets” lined with overhauled machines, waiting for the summer’s work to open up.



● Rear view of the main shop. Rear door is for the automatic welding; three side doors lead into overhauling bays. Ramp in foreground is for loading units on trailers. Note mast for firm’s radio.

parent company together with its paving wing, V. N. Holderman Paving, Inc., and a bridge firm, Beaumont Bridge Company, is in the forefront in Ohio’s phenomenal booming road program (\$280 million awards in '58 vs. \$193 million in '57).

Last spring the firms successfully bid \$19 million in new jobs on top of \$11 million worth of carry-over work. Holderman roams Ohio, with only an occasional job farther away.

The organization, actively headed by V. N. Holderman, includes two sons and a group of managers, engineers, estimators, operators and mechanical people totaling over 900 during the summer peak. Robert Holderman is in the administrative end, Gail Holderman over all construction operations. George Yinger, a veteran staffer, heads the paving company, and Paul Benner runs the bridge firm. Concrete paving using two outfits was done at 9 locations totaling 700,000 sq. yd. during 1958. And grading quantities for the year will run about 5,000,000 cu. yd., just to name a couple of chief items.

The decision to maintain a complete mechanical

establishment came early in Holderman’s career. It was his belief that only in this way can a contractor keep a tight management control over the huge and growing equipment investment and assure high-speed completion of jobs with minimum mechanical trouble. The company built a sizeable shop right after the war, which drew so much comment that Roads and Streets featured it in a special report.\*

This layout was soon outgrown, and a larger shop building since taken over was recently expanded to the size here pictured. The company today makes major repairs and overhauls throughout the year, with

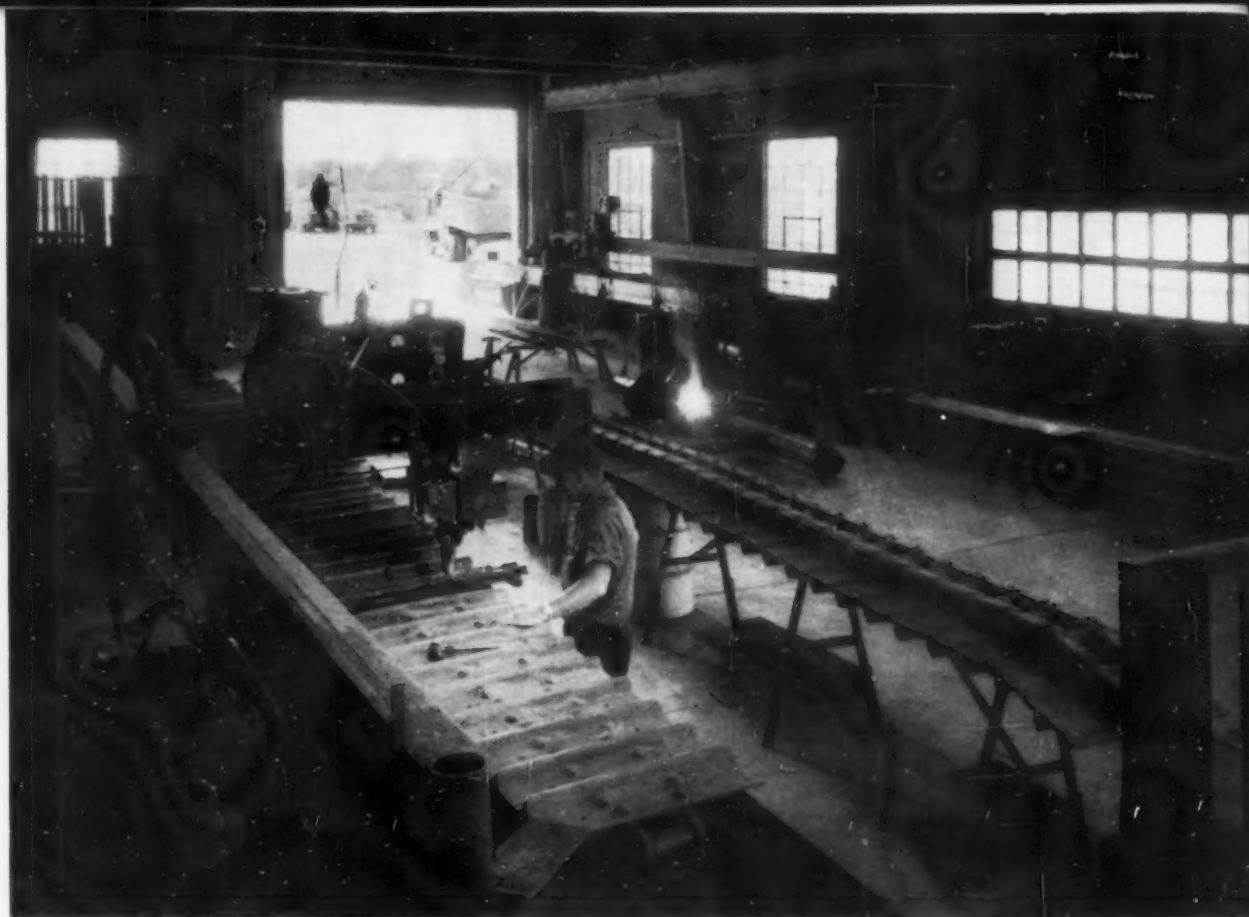
a summertime shop load running perhaps 50 percent or more of the winter peak. This is part of a strategy of keeping all equipment in top operating condition, despite the present fast pace which often requires overhauling before the summer is over. The equipment is shuttled in and out of the shop and yard. Also, in a program of keeping each project supplied only with the units needed, idle machines do their sitting in the home yard, ready to be sent out anywhere on short notice.

With this preamble, let us take a “tour” of the Holderman plant.

● **General Layout.** The company property on the outskirts of Columbus covers 8 acres. There is a main building, 80 by 250 ft., and four smaller storage buildings for paint, parts, storage, etc.

The yard is reached from the street via a haulway wide enough for two-way passage of equipment. The yard can, if necessary, hold a substantial part of the company’s 300 to 400 major equipment units at any one time.

\*See Roads and Streets, June, 1950, “Behind the Lines with Successful Road Contractors.”



**Automatic Welding** Two welding machines do hardfacing and welding on a large scale in the Holderman shop.

Stored equipment is kept in neatly squared-off blocks or islands, similar units being kept together when possible. For example, in April when the season's work was still opening up (see pictures), there were rows of bottom-dumps, pavers, light plants, tractors, rollers, and other standard items, all overhauled and painted, ready to go. In the rear was a row of wood structures portable on trailers, designed to setting off as parts and supply depots and job offices.

● **Shop layout.** The mechanical work, except for some overhauls of big shovels out in the yard, is centered in the steel-framed main building. This structure has wide, high doors—one off the street in front, three on the side and one in the rear. The 18-ft. headroom under the hoist bridge is sufficient for any of the equipment.

An overhead crane with electric chain hoist runs the full 250 ft. length of a main 45-ft. wide bay. Up front in this bay is the heavy equipment overhauling. Here there is room for, say, six tractor or other

heavy tear-downs, two paving mixers, and one major diesel unit.

Welding, including two automatic setups for tracks and rollers is done to the rear under the crane-way and occupying perhaps 45 x 60 ft. of space.

The adjoining 35 ft. bay, front to back, contains mechanics' benches and space for handling four-truck overhauls at a time; walled-off office and parts depot; engine overhaul section, and to the rear, hand welding and space for miscellaneous work. Through a rear door, using a roofed-over concrete apron, is the steam cleaning.

● **Heavy Tear-Downs.** Heavy equipment is really given the works when overhaul time comes around. The company has found that a thorough job pays here, once it has been necessary to do any major repairs. The work includes a complete strip-down of tracks, engine, transmission, etc.

This work centers around engines and tracks. Diesel engine overhauls will run nine or ten per month in winter, and somewhat less in sum-

mer, with perhaps 70 or more in a year. The details done include injection nozzles and other precision assemblies which many contractors are not equipped to tackle.

Since engines are what make the field work go, several overhauled diesels are kept on hand for emergency replacement out on the jobs. Stored engines are kept at a minimum, however; it is Holderman's observation that seals deteriorate with too lengthy storage. The company's diesels are principally of two makes.

Diesel engines in some cases are upped in horsepower during overhauls by changing cams, pistons and other elements. This modification is done with manufacturer cooperation in Holderman's effort to have ample power for scrapers, bottom-dumps and other units.

Earl Chamberlain is heavy equipment superintendent for the Holdermans; with Denver Curtis assistant superintendent. Ray Jennings and Elmer Tevlin are in direct charge of heavy repairs and diesel overhauls respectively.



**Field Storage Houses** Seen at rear of yard—row of renovated and painted wood field houses, ready to load on trailers.



**Battery Cart** Busy trailer booster service "a la cart", as seen in the equipment yard.



- One of the 5 Holderman trailers going out with a paver. Trailers run thousands of miles a month to keep projects supplied and get maximum working hours for each unit.

## Holderman's Equipment Yard

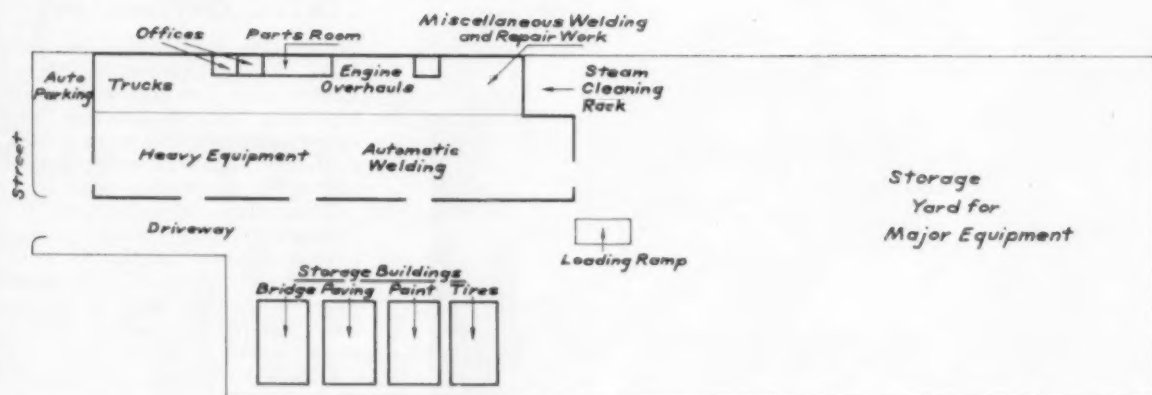


- Plastic tarpaulins are used to protect building materials from the weather. In rear is one of Holderman's secondary buildings, used for storage.

**Ready to Go** Another line of renovated equipment, waiting the late-spring call to go out on the job.







**Plenty of Room** The shop and yard layout at Holderman's headquarters. Storage space here for hundreds of machines. Overhauling space under roof for many major units at a time.

● **Welding and Hardfacing.** Tracks torn down are completely renovated during which worn pins and other parts are replaced and rollers, idlers, sprockets and other parts are built up by automatic welding. Three automatic Lincoln welding machines are kept in almost continual operation. One machine concentrates on rollers and grousers, the other two on track rails. Flux is reclaimed for re-use by grinding it in the shop.

Hand welding is also done as needed throughout the shop, with work on individual parts or small machines handled in a rear area. Ten Lincoln shop-type electric welders are on hand. Five gasoline-powered, truck-mounted welding units are also kept busy out on projects.

Hardfacing is done manually to build up and salvage dipper teeth, bucket sides, scrapers edges, track elements of crawler shovels, cranes, etc.

All welding is under superintendent Harry White, who has 18 or more men in his shop, including

four or more on night shift. White is also responsible for field welding, to the extent that he must see that the right equipment and reliable men are supplied to project managers when wanted.

● **Truck Repairs.** The company's truck fleet includes truck-tractors, trailers and flat-bed trucks for transporting machinery; a score or more of field service trucks for carrying lubricants, fuels and light repairs.

Also some 50 panels and pickups for supervisory use.

The heavier trucks and truck-tractors get the Holderman tear-down treatment when needed. The work done includes engine, transmission, rear-end, hydraulic system, electrical, etc., with the body also being put in good condition. Paul Fickel, truck superintendent, runs this end.

● **Other Activities.** Steam clean-

### Steam Cleaning Done on "Back Porch"

Two steamers on this rear platform are kept busy giving parts and assemblies the treatment.

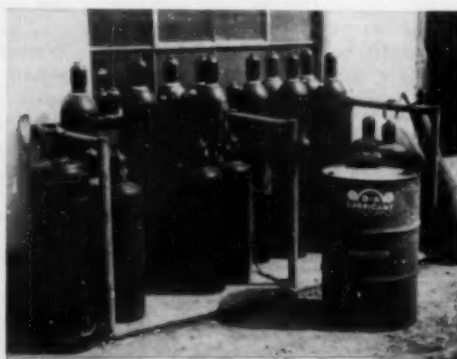




**Truck Overhauls** Larger trucks and truck-tractors are overhauled in this part of the Holderman shop.



**Light Plants** Generator sets, too, need renovating and painting. Here is a row of skid-mounted units waiting in the yard.



**Torch Work** Acetylene cars on rubber tires are moved around the shop as needed. Seen here is the concrete-floored storage dock for cylinders.

## CENTRAL OVERHAULING

ing is done on the rear platform using a large-capacity Malsbary steamer unit. Two or more men are kept busy in the paint room. The shop facilities include a compressor, a Rodgers hydraulic press and, of course, full automotive tools.

This fairly well rounds out the shop picture, which involves a year-around staff of 45 mechanics, welders, painters, helpers and others with 60 or more men in winter. Two parts men take care of the supply rooms, which are kept well stocked but still held down tightly in inventory.

The shop runs 7 am to 4 pm for the main work load. A smaller crew comes on at night, and often is able to save important hours in preventing or minimizing project down time.

Also a part of the picture are the truck and trailer drivers, whose daily and nightly shuttle over Ohio highways helps in the tight company operation.

Some 65 Motorola mobile 2-way radiotelephone units and four base stations help keep the Holderman organization in touch.

This, then, is a fairly quick look at a large road contractor's highly self-contained mechanical operation. Readers will ask, does it pay? The question seems to be answered by the Holderman company growth. Shop and field maintenance of equipment today is a deeply imbedded part of over-all company management.

## Connecticut State Radio System Installed

Installation was completed recently on a state-wide radio communications systems for the Connecticut state highway department. Designed to keep field crews at various headquarters people in touch with each other, the system includes mobile units for 350 vehicles. All equipment is by Motorola, Inc., which will maintain and service equipment under lease terms.

System will be operated through seven 250-watt primary stations, three 60-watt secondary stations, and twenty-six 30-50 watt auxiliary stations.

The primary stations, those at the various divisional headquarters, have transmitted power to connect them with the other primary stations. The secondary stations are designed to reach their own primary stations. The state police radio system is a separate unit.



**WHAT IS...?**

CATERPILLAR'S  
**PROJECT  
PAYDIRT**

1959, experts say, will usher in the greatest period of construction in history. How will you do in this era of tremendous growth? The answer depends in large measure on your machines. Their performance determines your profit. Caterpillar's research and development program in this period will continue to provide the best possible earthmoving machinery.





# Project

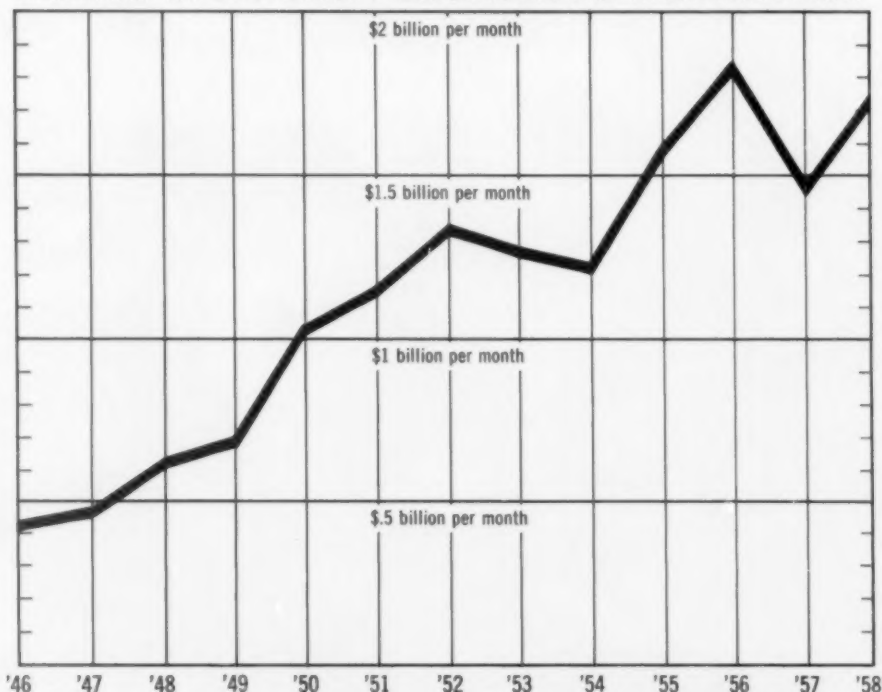
## CATERPILLAR RESEARCH AND DEVELOPMENT

A multi-million-dollar research and development program at Caterpillar Tractor Co. is paying off for you in the most productive earthmoving equipment ever manufactured. It's PROJECT PAYDIRT—the big news in the construction field today.

Caterpillar research consistently has been first with the major developments in earthmoving equipment. Each development has meant more production and more profit for owners of Caterpillar machines.

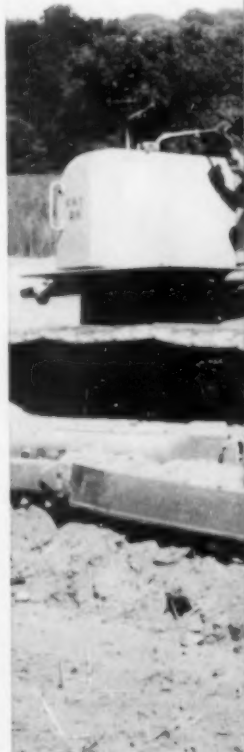
Since 1946 the money spent on heavy construction

### GROWTH IN U. S. HEAVY ENGINEERING CONSTRUCTION



Source: U. S. Dept. of Commerce

SHARP INCREASE of money spent in U. S. on heavy engineering construction, both public and private, is shown in this graph. In 1946, a monthly average of \$431 million in heavy engineering construction contracts was let. In the first eight months of 1958, contracts averaged nearly \$2 billion (\$1,717 million). By 1975, average monthly contracts of approximately \$3.5 billion are expected.



## HERE'S WHAT PROJECT PAYDIRT MEANS TO YOU!

As the amount of construction increases, more contractors will enter the field, and competition for the work will be intense. Machines may be the difference between profit and loss. There will be no place for anything but modern, heavy-duty machines—machines that can perform profitably, day in and day out, under severe conditions.

Caterpillar has these machines, a full line of quality, job-tested earthmoving equipment. And PROJECT PAYDIRT insures that the Caterpillar line will always be ready for the job ahead, regardless of changing condi-

tions and demands. Proof of this lies in the past record.

Since the end of World War II the Caterpillar line has experienced a continuous growth. And in 1951 the DW20 and DW21 were introduced. These wheel-type tractors soon proved ideal power units for scrapers. Also from PROJECT PAYDIRT that year: the No. 90 Scraper, top producer with track-type tractors; and the HT4, a track-type, hydraulic front end loader.

The workhorse D8 Pusher, designed especially for push-loading applications, was introduced in 1953, along with



# Paydirt

## PACE GROWTH IN HEAVY CONSTRUCTION

in the United States has more than doubled. By 1975, experts predict, it will more than double again. Between now and then may well lie the country's greatest era of construction.

PROJECT PAYDIRT is Caterpillar's answer to the

challenge of this explosive growth in heavy construction.

Money spent on heavy construction in U. S. has risen since 1946 from \$5,172,000,000 to more than \$20 billion. Experts predict that by 1975 annual expenditures will rise to more than \$40 billion.



the No. 6 Shovel and the DW15, a smaller four-wheel tractor. 1955 brought the massive D9, king of the crawlers, equally effective as a bulldozer or for pushloading scrapers.

Also in 1955 came the three Traxcavators (Nos. 977, 955, 933), and the LOWBOWL Scrapers (Nos. 470, 456, 463), top producers that competitors still are trying to duplicate.

The Oil Clutch began setting new long-life standards in 1955. Also introduced in that year were other LOWBOWL Scrapers (Nos. 428, 435, 491), and tractor-mounted hydraulic Rippers (Nos. 4, 6, 8, 9).

In 1957, the Side Dump Bucket was offered as an at-

tachment for the No. 955 Traxcavator, resulting in greater production through in-line loading. In the bulldozer line, the revolutionary Gyrodozer for the D7 Tractor began its career as the most versatile blade yet developed. PROJECT PAYDIRT was producing the equipment to match the growth in engineering construction.

The new Dry-Type Air Cleaner for the D9, DW20 and DW21 was introduced last month. This air cleaner removes 99.8% of all dirt in the intake air. And it requires only 5 minutes instead of the 20 formerly required to service the oil-type cleaner. That's 15 minutes more production time at each service period.

**AND NOW**



**BRINGS YOU...**

## **LIFETIME LUBRICATED ROLLERS AND IDLERS**



- **No routine servicing!**
- **Outwear conventional rollers and idlers!**
- **Feature new leakproof seals that can be re-used!**

Three million test hours under the toughest conditions prove this fact: new D9 lifetime lubricated rollers and idlers have no equals for low-cost, trouble-free performance.

Lubricated in the factory, they never need servicing again until they are rebuilt. They last far longer with less maintenance than conventional counterparts. Their new seals are leakproof and can be used again and again.

These outstanding advantages are the direct result of Caterpillar's new, exclusive concept in roller seal design—a metal to metal, floating ring seal.

Important as the new seal is, it is only one of many major improvements in the new D9 track roller. Major changes have also been made in rim, hub, bushing, outer sleeve bearing, roller shaft, end collars and lubrication system. These advances greatly extend roller life and effect

substantial savings when rebuilding is necessary. See your Caterpillar Dealer today. He has the full story on what the new lifetime lubricated roller can mean to you.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

# **CATERPILLAR**

Caterpillar, Cat and Tractor are Registered Trademarks of Caterpillar Tractor Co.

**BORN OF RESEARCH...  
PROVED IN THE FIELD**



● All steel was assembled with  $\frac{7}{8}$ -in. high strength bolts, using an Ingersoll-Rand automatic "torsion bar" torque control air Impactool. One two-man bolting crew averaged 800 bolts a day.

*Steel highway span over intercoastal canal is assembled with high-strength bolts at rate of 800 a day with automatic torque-control impact wrench.*

A two-man bolting team, using an automatic "torsion bar" torque control air wrench, set an average 800 bolts a day in assembling steel sections of the new Bayou Boeuf bridge near Morgan City, Louisiana. Inspectors, spot-checking result with hand torque wrenches, found practically 100 percent consistency was obtained in running the  $\frac{7}{8}$ -in. high tensile steel bolts to the prescribed torque.

These production rates were maintained despite the fact that approximately 95 percent of the nut running had to be done aloft, with scaffolding to move and hang. Under favorable conditions, this two-man crew actually attained speeds of 300 accurately torqued bolts an hour.

The new bridge carrying highway 90 is 3,655 ft. long with vertical clearance of 73 ft. at high water. Piers are on steel piling driven 50 to 100 ft. to support foundation

pedestals. Spans 1 to 9 and 49 to 63 are on cast reinforced concrete columns. Spans 10 through 48 are supported by steel columns cross-braced and bolted together. Steel beams for the approaches are 30 to 36 in. deep. Main girders over the water form a continuous 500-ft. span, bolted on the site from 100-ft. sections. The long girders were fabricated from 7-ft. plates with top and bottom flange plates welded to form huge I-beams. The cross members and girders carrying the two-lane concrete roadway were delivered in sections within the capacity of highway transportation facilities and assembled on the site.

For the sub-assembly work on the ground and the final assembly in the air, the contractor chose high-strength bolts because they required less work and were cheaper to install than rivets. A total of 36,025 bolts of  $\frac{7}{8}$ -in. diameter and  $2\frac{1}{2}$  to 3 in. long were used with hexagonal

nuts and hardened washers.

The contractors, W. R. Fairchild Construction Co., Ltd., and J. W. Snowden Construction Co., of Hattiesburg, Miss., had just finished another bolted bridge at Covington, La., using conventional impact wrenches to run the nuts. Each morning the men would run a few test nuts and time the impacting required to reach the specified torque. Success in reproducing this torque throughout the day depended on the skill, judgment and concentration of the operator.

For the Bayou Boeuf bridge it was decided to use the Ingersoll-Rand 5340T "torsion bar" torque control air Impactool which can be set at torques as high as 550 ft.-lb. When the tool exerts the preset torque on the nut, the mechanism rebounds instantly and shuts off the compressed air supply. This shifts responsibility for torque control to the tool from the operator who needs only to run the tool until it shuts off automatically.

For this bridge job, the tools were set to deliver between 470 and 500 ft.-lb., producing a bolt tension in excess of the 37,000 lb. recommended for calibration of wrenches by the Research Council on Riveted and Bolted Structural Joints. Fairchild-Snowden felt that since the impact tool had the power, it was desirable to stay on the high side.

*(Continued on page 51)*

## BOLTING

## BLITZ

### Speeds Louisiana Bridge Erection

# Strong Medicine for Pennsylvania's

Pennsylvania's traditional political spoils" management of highway construction and maintenance, which has hampered program progress and sent so much public money down the drain in that state, is in for revamping—if the state's legislature will act on recommendations made by the Automotive Safety Foundation. The Foundation recently reported on its study, made on invitation of Governor Leader following a resolution by both branches of the Pennsylvania legislature.

The Foundation's report was reviewed in *Roads and Streets* last month. Readers will also recall the spread report, "When the Political Axe Wrecks a Highway Department," in July, 1957.

The Foundation's comprehensive report covered the aspects of personnel, land acquisition, planning and programming, traffic engineering, urban problems, design and construction, maintenance, public information, department organization and top management. Their recommendations on top management are published here in full, in the belief that this could become an utterance of historic or "turning point" importance in Pennsylvania. It certainly is "must" reading for the governors, legislative members and civic leaders in other states which still have not been able to take their road programs out of politics.

—The Editors.

For nearly 30 years the highway department in Pennsylvania has been operated under the joint management of the governor and the secretary of highways. In the Act of 1929, the legislature delegated to the secretary of highways the authority and responsibility for highway administration, subject to control by the governor on several matters. Since the secretary serves at the pleasure of the governor, and is required by law to obtain his approval on specific matters, administration is, in fact, a joint responsibility.

The secretary's authority is further constrained by administrative policies created by several agencies operating under the plan authorized by the chief executive pursuant to the administrative code.

This policy in Pennsylvania clearly is intended to give to the governor broad responsibility and wide administrative freedom, and is supported by many students of government.

Nevertheless, it has not produced in Pennsylvania continuity of highway planning and development, nor the establishment of a competent career organization.

Both of these are indispensable to the efficient operation of a modern highway plant, and to maximum economy and social benefits to the public from motor transportation.

Continuity of organization can be achieved by a sound tenure plan for department personnel. But a long range program for orderly improvement of the highway system can never be assured so long as administrative policy is subject to periodic change. Such changes under the present policy are brought about largely as the result of political influences. This is not the fault of either of the major political parties; it is a fundamental weakness inherent in the existing structure of top man-

agement. As a great many other states have found, the only permanent solution is to take the administration of highways out of the political arena.

Consideration therefore was given in this study to various alternative methods of top management which might afford to Pennsylvania a better opportunity to achieve continuing, factually developed administrative policies in highway affairs.

● By far the most common method now employed for this purpose by other states is the commission form of highway management. The commission is a quasi-administrative body which formulates policy for the department under authority granted by the legislature.

All but 13 states are now operating under some form of highway commission. Their form and degree of authority vary: in ten states, the commissions have full administrative powers, with their members having full time duties. In others, the commissions are advisory only.

The predominant type is a part-time commission with a single executive. Twenty-one states now have this top management plan, and the trend has been notably in this direction. Authority is granted the commission to determine administrative policy and to establish basic rules for operation of the department. The executive performs all administrative functions as authorized by law, and serves as administrative officer under the commission.

In the course of analyzing highway needs and assisting in the development of long range programs in 21 states, the Automotive Safety Foundation has appraised the management responsibilities and effectiveness of organization policy in those states. This has led to the conclusion that either the commission form or the single executive type of management can operate efficiently.



# Politics-Ridden Highway Management

● The significant fact characteristic of all successful administrative programs is the absence of political influence on either the highway program or the people in the highway organization.

Recommendations of the Foundation have developed upon findings in each state. In Minnesota, for example, it was recommended that the single executive form be retained. But in that state the highway function traditionally has been regarded as a professional, non-political operation, to such degree that during the past 40 years only four different highway commissioners have occupied that position; two for 18 years each.

By contrast, in Pennsylvania where the opposite tradition has prevailed, the department has had at least 17 different chief administrative officers in the same period.

The part-time commission form of management, with an appointed executive, is recommended for Pennsylvania as the type best suited to existing conditions, and one which has proved highly effective in other states now enjoying stable highway policies and organizations.

● California, Oregon and Washington are examples of successful highway administration of the commission-executive type. Washington made the change recently after a series of turnovers in the office of governor. The arrangement has proved satisfactory.

The Foundation recommends a commission-executive form of top management for Pennsylvania, with these general qualifications:

● The commission should not exceed seven members, elected on a statewide basis, not geographical, with staggered terms not to exceed six years, and subject to removal only for cause. Appointment by the governor, subject to confirmation by the Senate.

● It should be a part-time policy-making commission, holding regular monthly meetings, with duties and responsibilities specified by legislative action.

● The commission should appoint as its chief executive a director of highways who would be authorized to organize and administer the department, and who in turn would appoint his chief deputy. The chief deputy should be a competent highway engineer, registered as a professional engineer under Pennsylvania law. Responsibilities and duties of the director should be clearly spelled out by the legislative act.

An alternative method for achieving the same objective in Pennsylvania without disturbing the present top set-up would be creation by law of the position of chief engineer of the department, who would be the administrative executive and a permanent career employee under civil service. The secretary of highways would then serve as the pol-

icy-directing officer, performing essentially the same functions as those assigned to the part-time commission in the top management plan recommended above.

● This alternative recommendation is qualified by one essential condition; i.e., that the policy and administrative responsibilities, respectively, of the secretary and the chief engineer, be clearly spelled out by the legislature.

No matter what form of management is adopted for Pennsylvania's huge highway program, success in the final analysis will depend upon the attitude of the citizens, the legislators and the executive employees of the state toward administration of highway affairs.

If traditional political attitudes could be abolished over night by firm resolve to make the highway department the most efficient and effective operation possible, then almost any plan could be made workable.

But such a change in attitude takes time. In the interim, with huge and expensive undertakings so urgently required, the legislature should take immediate leadership in breaking the tradition by establishing safeguards which will assure greater stability, competence and continuity in the highway operation.

---

## Contractor Association Asks "Why the Delay?"

The importance of giving the utilities advance notice on removal of facilities from highway rights of way, before the contractor moves in, is a point on which the Associated Pennsylvania Constructors have been campaigning—without too much results.

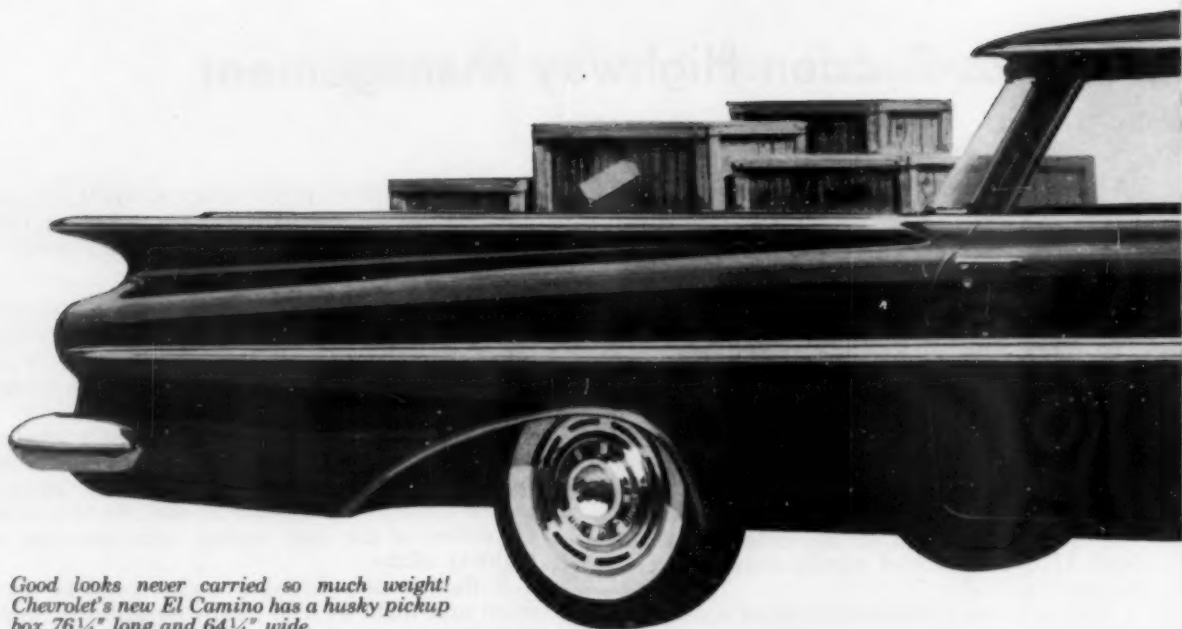
Back in 1955 the president of this Association urged that the Pennsylvania department of highways do something about the matter, and got promise of cooperation.

An editorial in the Association's publication in October, 1958, is entitled "We Repeat—Why the Delay?"

"Now, three years later," this editorial states, "Contractors are still expected to widen roads and build new highways around or over utilities that have not been moved from the right-of-way. The state highway department is now asking for a letter relieving the state of damages before making awards for construction."

This editorial urges special attention to this problem in connection with any consideration of the Automotive Safety Foundation's recommendations for overhauling State Highway administrative practices.

---



*Good looks never carried so much weight! Chevrolet's new El Camino has a husky pickup box 76¼" long and 64¼" wide.*

*New 1959 Chevrolet Series 60 stake —a built-to-last hardwood body teams up with tough truck chassis components and modern valve-in-head power to put you dollars ahead on every haul!*



*This 1959 Chevrolet Series 100 heavyweight provides 48,000-lb. G.C.W. . . . comes equipped with big 230-h.p. Workmaster V8 engine with Wedge-Head design!*



THE BEST YET OF THE BEST SELLERS...



# CHEVROLET

## TASK-FORCE 59 TRUCKS



For '59, the brightest new ideas in trucks are Chevrolet's! There's the glamorous new El Camino to set a new standard in styling... new features and refinements in every model to set new records for saving!

Chevy's serving up something special for '59—the soundest, savingest, sharpest looking line of haulers that ever hustled a load! For evidence, consider the dazzling all-new El Camino. It combines the slimlined beauty of the '59 Chevrolet passenger car with the ability to handle man-size hauling jobs!

Or take the pickups of Task-Force 59—a dozen big-bodied beauties that can fill the bill on scores of jobs with five handsome Fleetside models, seven handy

Stepside pickups, including 4-wheel drive models. A new edition of the famous Thriftmaster 6, standard in light-duty models, delivers up to 10% greater fuel economy—up to 20% with new maximum economy option.\*

And the picture's just as bright in the medium- and heavy-duty classes. Here, you'll find V8 power that's new and tougher built, too... with axles, transmissions, frames and brakes that are refined and improved to whip the toughest runs without a wheeze or whimper.

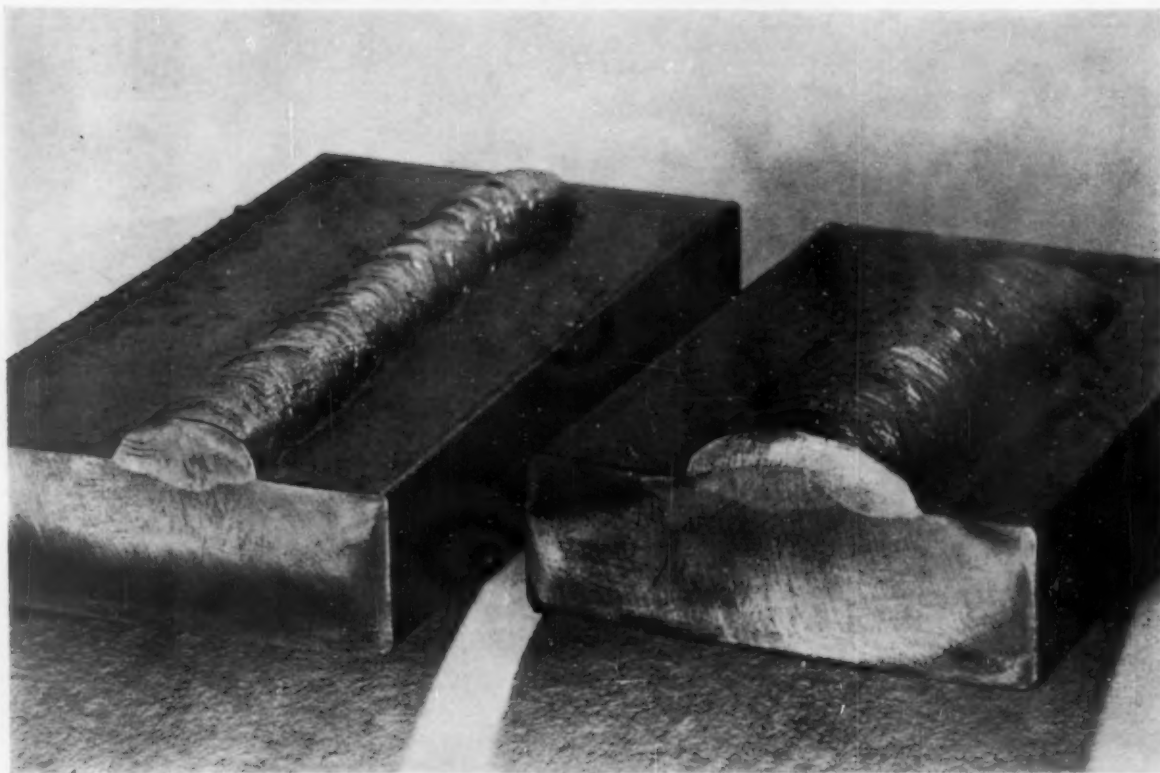
Whether your truck is a light-, medium-, or heavy-duty job, these are trucks you've got to see! They're on display right now at your Chevy dealer's... Chevrolet Division of General Motors, Detroit 2, Michigan.

\*Optional at extra cost.

**NEW MIGHT, NEW MODELS, NEW MONEY-SAVING POWER!**

... for more details circle 255 on enclosed return postal card

**ROADS AND STREETS, December, 1958**



*Two typical weld samples using Stoody Iron Powder Build-Up. At left is a stringer bead showing high build-up with a single pass. At right is a two pass weaving bead. Etched and polished ends show depth of penetration. Compare these results with your present build-up material.*

## Try New Stoody Iron Powder Build-Up

*...then compare the build-up height!*

You can rebuild worn equipment faster and get sounder, tougher deposits with **STOODY IRON POWDER BUILD-UP!**

This new build-up electrode is a "natural" for use on parts made of carbon and low alloy steels. Deposits are tough, rigid, resistant to mushrooming and cold flow.

Most important, *hardness of deposits is not dependent on carbon, but is the result of STOODY BUILD-UP'S balanced alloy content!* This means greater uniformity and overall dependability of deposits—regardless of variations in base metal analysis.

Try **IRON POWDER BUILD-UP** today! Available from your Stoody Dealer (Check the Yellow Pages of your phone book) or write direct.

### STOODY COMPANY

11908 East Slauson Avenue • Whittier, California

... for more details circle 281 on enclosed return postal card

#### HOW STOODY IRON POWDER BUILD-UP SOLVES TODAY'S BUILD-UP NEEDS:

1. Makes high deposits in a single pass.
2. Lays down more pounds per hour at a lower cost per pound.
3. Deposits are tough and rigid, resistant to cold flow and deformation.
4. Provides strong support for overlays.
5. Won't spall, work-harden or crack.
6. Deposits will not exceed 45 Rc in hardness even when quenched.
7. Deposits are machinable.
8. Excellent weldability with minimum spatter and smoke.



(Continued from page 45)

The tools were set to the desired torque on a simple jig, and then tested by running three or four bolts on a Skidmore-Wilhelm hydraulic calibrator which gives a direct reading in bolt tension. It was not necessary to change the torque setting more than once in five days. Inspectors from the state department of highways checked 15 percent of the nuts with hand torque wrenches and found torque uniform and consistently above specified minimums.

Assembly work on the Bayou Bocuf job was almost wholly in the air. Bridge components were large sub-assemblies (such as the 7-ft. girders of the main span) and many parts were too big to be reached by men on the ground. Consequently, the bolting crew had to work from temporary platforms and low scaffolds even on sub-assembly. Despite these problems, the two-man crew maintained its average of 800 bolts a day. Normally, this was sufficient to keep up with the steel ready for bolting and a second Impactool was kept as a spare.

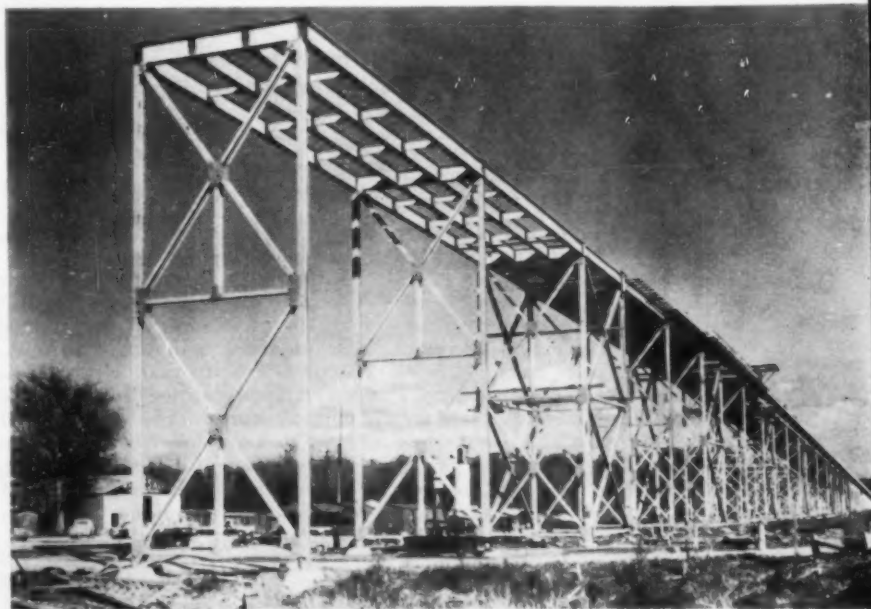
Occasionally it was possible to use both tools simultaneously; this could be done without keeping a specially-trained bolting crew in reserve. Project superintendent Enos Fangue found that any man who could work on steel could operate the automatic tool. (By contrast, the slower riveting method requires a specially trained and coordinated gang of five men—the riveter, the buckler-up, one to insert the hot rivet in the hole, the rivet heater and the “punk” who keeps the supplies coming along.)

● The land approaches were supported by cross-braced steel columns, all bolted together on the ground and in the air.

● (Right): The “torsion bar” torque control impact tool was set on this jig to deliver 470 to 500 ft.-lb. Once set, the tool ran nuts to the preset torque, shutting off automatically. (Left): Tools were tested on a Skidmor-Wilhelm hydraulic calibrator which gives direct readiness in bolt tension.



● The big sections of the center span being swung into place for bolting together. A total of 36,025 high-strength bolts in the bridge.



## Delegates at Kiamesha Lake

# Probe County Engineer's Expanding Responsibilities

*Continued importance of secondary and local roads spotlighted at ARBA County Conference, along with problems of county road planning, priority selection of improvements, cooperation on Interstate work, and need to know more about selection and utilization of equipment.*

Exclusive Report by Duane L. Cronk  
Director, Highway Information Services, Inc.

**T**HE COUNTY engineer had his day at the American Road Builders Association's recent National Highway Conference for County Engineers and Officials. Congressmen, national highway leaders, and state road officials paid recognition to the expanding importance of the secondary road system, and told 900 county engineers and rural road builders at the Kiamesha Lake (N.Y.) meeting that their responsibilities in years just ahead would increase, not decrease.

To give county engineers opportunity to explore those areas of responsibility, ARBA offered a conference program that ran the range from high-level planning to testing of materials in the field.

ARBA's executive vice president, Gen. Louis W. Prentiss, declared that the highway industry must maintain a continuing interest in the secondary road program for several reasons:

- It still represents two-thirds of the mileage of highways under federal-aid.
- As federal-aid for primary roads is boosted, more funds will be freed for application to secondary construction and maintenance.
- Local roads are so close to the public interest that they comprise

a vital element in highway public relations.

A number of revolutionary new engineering techniques exposed at the conference are beyond immediate application in many counties, General Prentiss said. However, as the responsibilities increase, he pointed out, county officials will want to know how they can make their operations more efficient. He predicted that the infiltration of engineering techniques such as photogrammetry, aerial photography, and electronic computers into the county engineering field would be slow but steady. He urged the county engineers to keep abreast

ARBA's Conference drew national leaders to address the delegates. New York Governor Averill Harriman (center) and ARBA's Executive Vice President, Louis Prentiss. (Left): Louis A. Lush, Sangamon County (Ill.) Superintendent of Highways and President of ARBA's County Roads Division. (Background): Ben Ostergren, Managing Director ARBA's County Roads Division.

of these trends, and to save time and money by their application wherever they could:

"It is in this (rural road) area that we find maximum mileages and a minimum of funds," said Gen. Prentiss. "It is, therefore, quite essential that in the exercise of his responsibility, the county engineer utilize modern methods and techniques to the fullest extent feasible. For example, he should give every consideration to using the economic contract method for construction as well as major maintenance work where practical. Also both time and money may be saved under appropriate circumstances by engaging the services of qualified consultants.

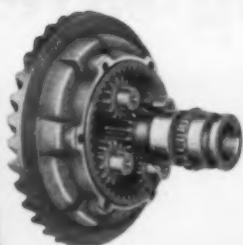
To obtain maximum benefit from the expenditure of the taxpayer's money, it is quite important that county organizations carefully evaluate the efficient use of equipment fleets. "Only by taking full advantage of modern machinery and equipment can maximum efficiency and economy be accomplished."

General Prentiss's latter recommendation was backed up by five equipment specialists who reviewed recent trends in design of machinery for excavating and grading, compaction, stabilization, surfaces, and highway operations.

● **Must Upgrade Feeder Roads.** Concern that adequate attention be given to systematic development of the nation's secondary road systems was voiced also by Julien A. Steelman, president of Kochring Company and president of ARBA. Although public attention may just now be focused on construction of the 41,000 mile National Interstate System, Mr. Steelman pointed out that truck movement passenger vehicles on these main arteries all originate and terminate somewhere "along the capillaries" of the primary road system. The responsibility

(Continued on page 64)



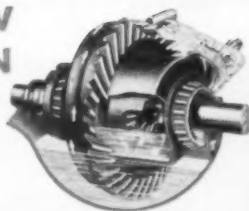


### PLANETARY GEARING

—distributes pressure and wear over four planetary gears, resulting in lower unit stress, reduced maintenance, longer axle life.

### FORCED-FLOW LUBRICATION

—supplies positive lubrication to all moving axle parts, even at slowest vehicle speeds.

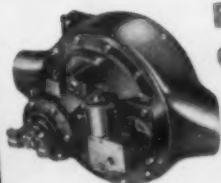


### SELF-CONTAINED AIR BRAKE

—provides for greater braking efficiency: quick action and quick release; quick easy reline. Available on Eaton air brake models.

### POSITIVE SHIFT CONTROL

—on 2-speed models, provides quick, easy shifts. Drivers use available gear ratios—the right ratio for each road and load condition.

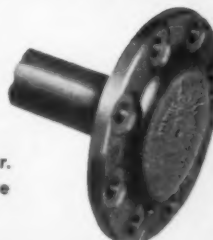


### EXTRA-RUGGED CONSTRUCTION

—eliminates the possibility of harmful distortion or misalignment under full load, holds maintenance to a minimum.

### INDUCTALLOY AXLE SHAFTS

—handle more pounds of torque without fatigue failure; last 3 to 10 times longer. Keep trucks on the road, reduce maintenance expense.



## These EATON AXLE Features Save Money for Truckers

The advanced features built into Eaton's practical, down-to-earth axle designs add up to rugged dependability, less shop time, easier maintenance, longer axle life. They enable truck operators to get the most out of their hauling equipment at lowest possible cost. Ask your truck dealer for complete information.

More than Two Million  
Eaton Axles in Trucks Today



# EATON

AXLE DIVISION  
MANUFACTURING COMPANY  
CLEVELAND, OHIO



PRODUCTS: Engine Valves • Tappets • Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Gears • Hydraulic Pumps  
Truck & Trailer Axles • Truck Transmissions • Permanent Mold Iron Castings • Automotive Heaters & Air Conditioners  
Fastening Devices • Cold Drawn Steel • Stampings • Forgings • Leaf & Coil Springs • Dynamatic Drives & Brakes

... for more details circle 251 on enclosed return postal card



# Rugged ASPHALT paving saves



Ribbons of velvet smoothness . . .  
MODERN **ASPHALT** HIGHWAYS



# Washington \$30,000 a mile

***...Saves State \$381,000  
in first cost on 12.7 miles  
of Interstate Highway.  
Maintenance savings  
expected, too!***

For the Prairie Creek to Tumwater section of U. S. Highway 99, the State of Washington chose modern Asphalt pavement.

By so doing it saved thousands of dollars in initial costs alone. The entire paving cost for 12.7 miles was \$826,978 . . . with savings of \$30,000 a mile compared with a connecting slab-paved section. *And more savings are to come . . . for Washington's records indicate that Asphalt pavements cost less to maintain.*

As records show in state after state, modern Asphalt highways are not only economical but also rugged and safe.

Rugged . . . because layer-upon-layer construction "locks" surface to the foundation, builds up strength and resilience.

Safe . . . because modern Asphalt pavement is traction-textured for high skid-resistance. There is less glare . . . greater traffic-line visibility.

In winter, snow melts faster and Asphalt pavement is not harmed by de-icing chemicals.



#### **ENGINEERED FOR RUGGED WEAR**

Modern Asphalt construction is a triumph of road-building science. Built-up layers spread the load . . . absorb shock and pounding. Economy, safety and comfort are built-in to last.

**THE ASPHALT INSTITUTE**  
Asphalt Institute Building, College Park, Maryland



... for more details circle 234 on enclosed return postal card

# On the Ohio Turnpike

## Road strength increased 30% ... with **USS** American Welded

**THE FACTS:** 14,000 tons of USS American Welded Wire Fabric went into the pavement of the Ohio Turnpike. The cost of reinforcement amounted to only 1% of the total cost to build the road. But American Welded Wire Fabric strengthened the concrete paving slabs by a full 30%. These figures speak for themselves in pointing up the value of quality concrete reinforcement with American Welded Wire Fabric.

The tiny cracks which may appear in concrete pave-

ment are held together firmly by American Welded Wire Fabric, preventing the development of dangerous breaks in the riding surface. The next few years will bring a great increase in the traffic load our highway system will have to bear. More than ever before our roads will require the added 30% of extra strength American Welded Wire Fabric brings to concrete paving slabs.

The New York Thru Way, The Indiana Toll Road, The Illinois Toll Highway, The Connecticut Expressway

**American Steel & Wire  
Division of**



**United States Steel**

Columbia-Genova Steel Division, San Francisco Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors • United States Steel Export Company, Distributors Abroad



# Wire Fabric

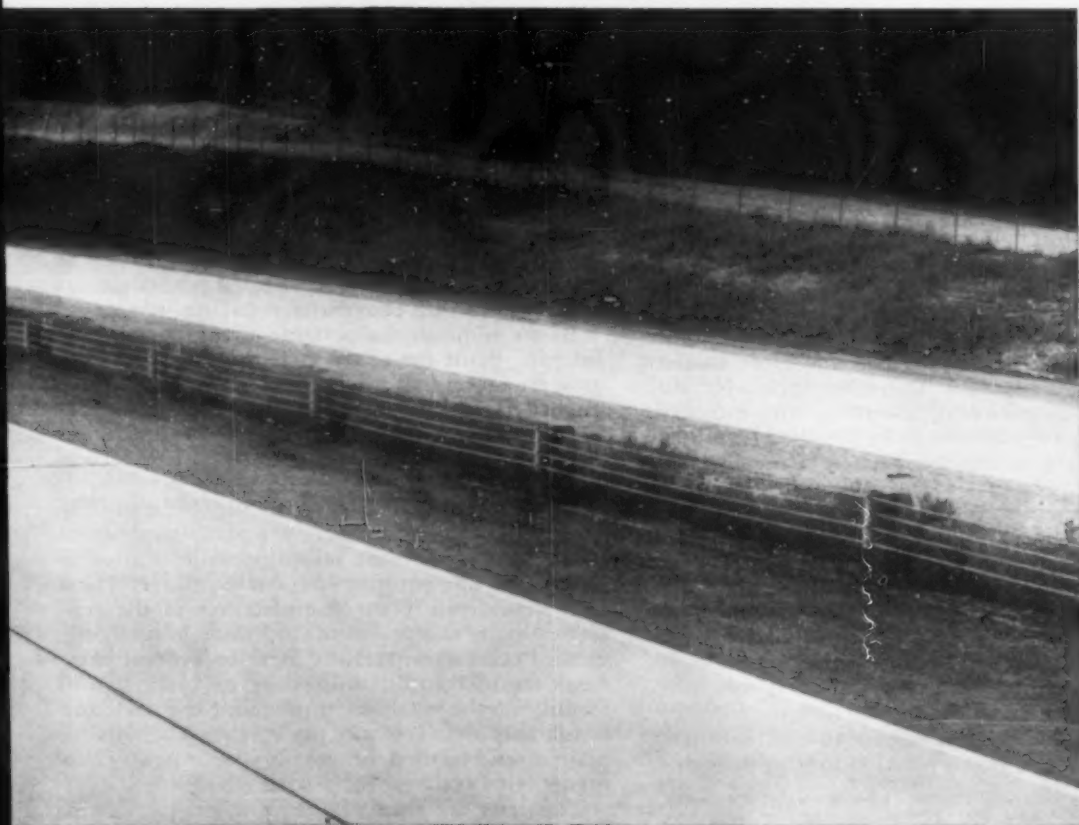
and many other new superhighways are reinforced with American Welded Wire Fabric. Whether you are building a giant freeway or a city street, be sure to guarantee yourself the maximum in road life and the minimum in maintenance by reinforcing your pavement with American Welded Wire Fabric. For complete technical details, write to American Steel & Wire, 614 Superior Ave., N.W., Cleveland 13, Ohio.

USS and American are registered trademarks



*American Welded Wire Fabric* is a tough network of electrically welded cold-drawn steel wire. For slab construction, it comes in convenient prefabricated sheets which can be handled easily by two men. Whenever you need concrete reinforcement, be sure to specify American Welded Wire Fabric.

ALWAYS ASK *"is it Reinforced"*



... for more details circle 236 on enclosed return postal card

**ROADS AND STREETS, December, 1958**



● 8 cu. yd. concrete agitator truck body on road work—one of the new "weapons" at the disposal of central mixing advocates.

## Ready-Mixed Concrete Producers Eye Bigger Highway Yardages

The ready-mix companies, seeking a larger share in the highway paving market, may turn to portable central mixing plants in liaison with contractors, or take part as joint venturer or subcontractor. The author reviews some of the problems of costs, quality production and inspection.

**By Glenway Maxon**

Consulting Engineer, Milwaukee, Wisconsin

The ready-mix operator, at present, is doing a large share of the concrete road and street construction within municipal limits and is doing some work on appurtenance, bridges and rural construction. In a few states\* the ready-mix operator has been able to furnish the concrete for road slab.

It is not due to lack of skill that this field has not been widely exploited but it is due more to the nature of the tools used. There has been a feeling among a large section of the ready mix industry that satisfactory concrete can be supplied by means of truck mixers, mixing the concrete while in transit. The objections to truck mixed concrete whether the produced concrete is for slab construction or not has come through difficulty of inspection and control of slump.

In respect to economy, there has been a new approach with portable batching plants which can be set up for the purpose of furnishing the ingredients for the road slab as well as the bridges and appurtenances. With this equipment, the ready mix concrete operator can start to compete with the conventional paving methods in respect to cost. Furthermore, the operator is in a position to furnish aggregates

and cement for highways which are in the general neighborhood of his main place of business and he should best know the costs and qualities of these materials. From this position he only has one further step to take in order to satisfy the engineers and compete with conventional paving.

By the addition of a portable mixer to a portable batching plant the ready mix operator can satisfy most engineers that he is in a position to guarantee quality. He can now join with the excavating contractor or with the paving contractor in a joint venture, or become a subcontractor in respect to ready mixed concrete.

The guarantee of quality should be made impressive. For instance, there are many methods of testing which the ready mixed operator can use to advantage. The equipment is not expensive. These tests should satisfy the manufacturer of the concrete, that is the ready mix operator himself, the general contractor, and the State or Federal engineers, as to control, uniformity of batches, uniformity of the qualities throughout the mix and satisfactory delivery and placement. The mixing plant should be used for one purpose only, and that is supplying concrete for a road job.

The tests are tests of the concrete for slump,

\*See "Ready Mix in the Road Program," a 3-part staff roundup; *Roads and Streets*; May, June, and July, 1958.

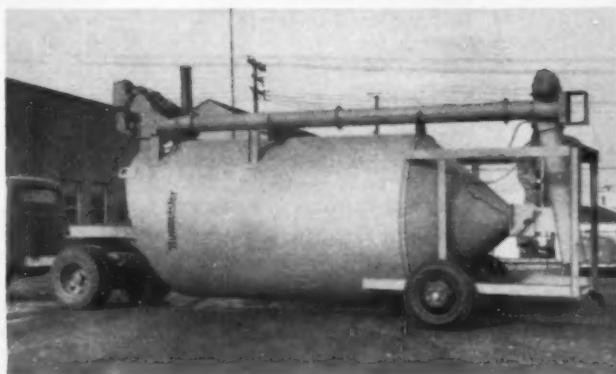


## Portable Central Mixing Plant

Plant mostly on rubber tires (seen suspended on frame) consists of aggregate bins in foreground with scales below bins; belt conveyor up to mixer (note operator at controls with wires to plug in control board); 3 cu. yd. tilt mixer; cement bins and batchers near terminal of belt conveyor; charging unit to height of mixer also charges water. Not shown and to the left is the portable diesel electric power unit.



- Aggregate batcher and bins on wheels—a type of equipment which has been steadily improved and made economically more competitive for handling a variety of road, street and bridge work.



- A cement bin with screw feeders ready to roll.

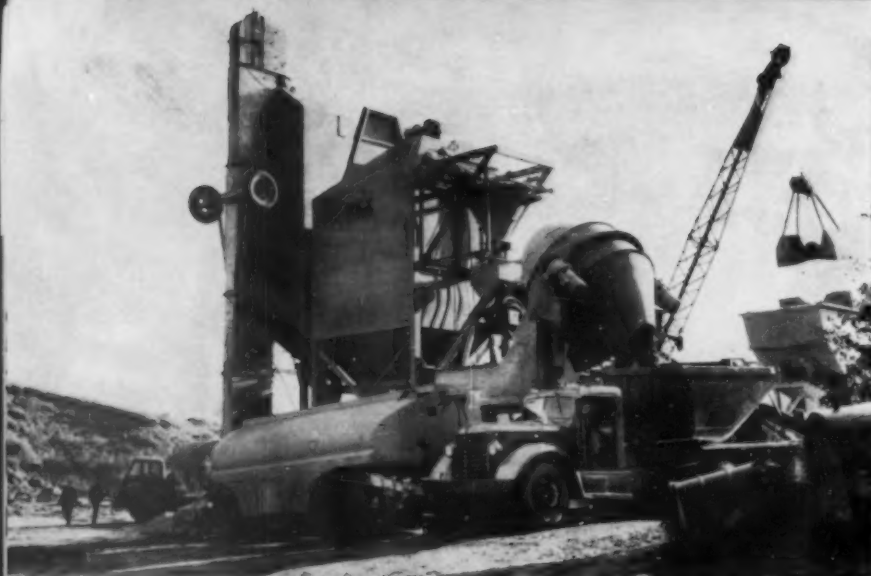
strength, cement content and air content; Tests of the materials—cement, sand, and stone and test of mixer performance as to uniformity of the discharged concrete and determination of the least length of mixing time.

When uniform results are proven the operator need not fear the presence of cement balls, 28-day strength being erratic, or most of the other troubles encountered. Indeed he can certify as to qualities because he can make the tests himself or have his concrete technician perform these services. He now puts himself in the position where he can offer the state or federal engineers something better than they ask for instead of giving them concrete of questionable quality.

All the inspecting personnel and the management of the plant can examine and test all the con-

crete as well as the equipment that is manufacturing the concrete and in this way open the door to a new and profitable source of business, furnishing concrete for highway and airport slabs. There is no necessity for the ready mix operator to do more than furnish the concrete for the paving contractor. A few ready mix operators are now furnishing central mixed concrete to paving contractors.

In reference to economy, let us examine this set-up and compare it to the conventional methods. The set must include a portable cement bin, aggregate bins, power source, water supply; portable mixed. Also methods of feeding the bins, batching equipment, and conveying equipment from batchers to mixer. Also must be included a number of truck mixers, used as agitators, or open truck bodies properly equipped to deposit concrete on the grade. More specifically a three cubic yard set up can be made with:



● Rubber tires are up in the air. Plant batches and mixes 100 cu. yd. per hour. Mixer tilts, discharges 3.3 cu. yd. of low slump concrete in 8 seconds.

1. A push bucket shovel of  $1\frac{1}{2}$  yd. capacity.
2. A belt conveyor to the aggregate bins.
3. Batchers underneath bins.
4. Belt conveyor to mixer.
5. Cement bin.
6. Cement and water batcher above mixer.
7. Three cubic yard mixer.
8. Power and controls.
9. From six to nine truck mixers or open body concrete trucks of 7 cu. yd. capacity (6.6 cu. yd.)

Larger plants up to  $7\frac{1}{2}$  cu. yd. capacity have been constructed. Modern methods of paving from a central mixing plant have shown some rather interesting developments. There are several machines available now which will take the concrete from the edge of the forms and spread it across the slab. These machines are now manufacturing in widths up to 25 ft. They do a reliable job of placing the concrete without segregation.

In order to satisfy himself, the ready mix operator should examine paving work with a critical eye to the methods of batching, conveying, mixing and placing.

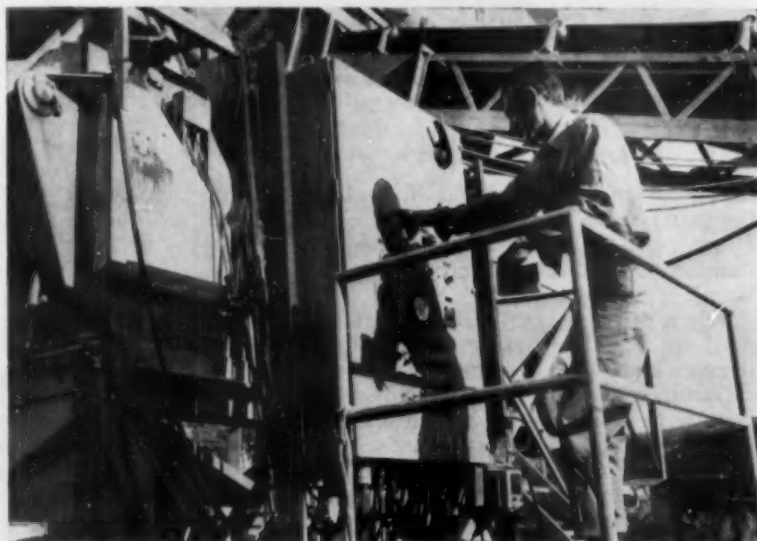
First of all let us consider the matter of capacity. A paver mixes about 1.39 cu. yd. of concrete in a batch. Five of those batches are about equivalent to the capacity of one  $7\frac{1}{2}$  cu. yd. mixer. In other words, a batcher truck carrying material, except the water, for 7 cu. yd. (five batches) might just as well deposit a single batch in a central mixer and get quicker results. At 45 sec. per batch, the paver would have a theoretical capacity of about 110 cu. yd. per hour while the seven

and a half central mixer with a cycle of  $2\frac{1}{2}$  min. would have a theoretical capacity of about 210 cu. yd. of concrete per hour or nearly double that of a dual drum paver.

If the studies are being made, we might well compare the time it takes to batch out a truck with five compartments to the time it takes to batch a  $7\frac{1}{2}$  cu. yd. concrete mixer. The truck may be batched in as short a time as  $2\frac{1}{2}$  minutes. The concrete mixer may be batched in the course of thirty seconds and the batch discharged into the carrying vehicle in the same length of time or less. Even when truck mixers are used to carry the concrete from the mixer to the grade, the same can be loaded quickly.

The operator should also make a study of the time that the batch must wait while loading a paver. This waiting period varies considerably from job to job due to delays in transportation, other equipment on the roads leading to and back from the batching equipment to the paver temporarily blocking passage, delay in transportation, rough roads, and unforeseeable events. It is not unusual for four or five batch trucks to be waiting the opportunity to discharge their multiple loads into the paver's skip. It is not a difficult time study to check these delays. Even if the operations were so perfect that one truck always arrived just as the other aggregate truck, empty, left the time elapsed from the first batch to the last must be considered. There would be 45 seconds, times 4 or 3 minutes of discharge time for each batch truck. This has no parallel for the discharge time in our central carrier; for when it arrives at the point of discharge, it can place its entire 7 yd. onto a machine for spreading the concrete over the grade or spout its concrete directly on the grade if provisions are present for spreading and preventing segregation. Hence the ready mix operator can have a quick comparison as to time of travel, time of loading, time taken for discharging and consequently the time taken for a complete round trip. You can make this comparison between the batch truck and the concrete carrying vehicle.

(Continued on page 63)



● This is the operator's control position, quickly set up (note the plug in connections—one of the important items for quick dismantling and equally quick erection at next location).

Unique to Reo and its complete line of Gold Comet engines, V-8's and 6's—is its advanced "wet-sleeve" replaceable cylinder construction. This design, together with the special alloy materials used and close tolerances to which pistons and cylinders are uniformly controlled, assures unsurpassed cylinder wall life. **Unlike conventional engines, a Reo engine never requires re-boring.** When it reaches the point of overhaul, it can be restored to its original standards of performance by any mechanic with the use of low cost factory matched cylinder-piston kits. Advanced "wet-sleeve" construction is another way in which important hidden values are built into every Reo engine . . . gasoline, LP-Gas and Diesel.



REO DIVISION, The White Motor Company, Lansing, Michigan      GOLD STANDARD OF VALUES

# REO







Lima Austin-Western 111 Crushing and Screening Plant, owned by Ronald Weaver, Dansville, Mich. High-grade specification material is being produced at an average rate of 1000 cu. yd. per 9 hr. shift.

## "Lima Austin-Western will outlast and outproduce"

*Says Ronald Weaver*

Ronald Weaver, Dansville, Mich., has owned and operated a Lima Austin-Western 111 Crushing and Screening Plant since January, 1953. With his 4-man crew, he works all year 'round, producing specification material meeting county and State requirements.

Mr. Weaver says: "I have owned and operated other plants, and I am convinced that over a period of time a Lima Austin-Western will outlast and outproduce other comparable machines. I depend on this plant to show a reasonable profit, and it has produced all that can be expected.

"It is truly a portable machine. Not long ago I moved the 111, power plant, feeder, two dump trucks,

dragline, bulldozer and other miscellaneous equipment 20 miles. The time involved in dismantling the equipment, loading, setting up, and resuming operation was only 3 hours.

"The quality of the equipment is shown by the fact that it has never required a major overhaul since it went into operation 5 years ago. But the most obvious reason for buying and using Lima-Austin-Western is the fine relationship and cooperation between not only the dealer and the operator, but more important, the manufacturer, the dealer and the operator."

Get the high-tonnage, low-cost Lima Austin-Western story from your nearby distributor . . . or write direct.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

**LIMA AUSTIN-WESTERN** Crushing, Screening and Washing Equipment  
**BALDWIN · LIMA · HAMILTON**  
 CONSTRUCTION EQUIPMENT DIVISION • LIMA, OHIO



. . . for more details circle 237 on enclosed return postal card



## Ready-Mix Concrete

(Continued from page 60)

Operational comparison between central mix and mix at point of deposit will show a saving of at least one third of the hauling units, and a saving in operating costs reflected by less labor.

Time studies show that a truck carrying premixed concrete can be loaded in 1 sec. per yd. from a wet batcher, (and  $7\frac{1}{2}$  yd. in 12 seconds direct from the mixer.)

Also, there is no need for delays at the subgrade. Four or more trucks can unload central mixed concrete at one time in the course of one minute each. It takes about three minutes for a five batch paver truck to unload and be on its way. On one job with several dump trucks waiting to be unloaded to two paving mixers on the shoulder, the average time consumed at the paver was found to be  $7\frac{1}{2}$  minutes.

Considering a job haul of 150 to 200 cu. yd. per hour, haul round trip of six miles averages:

### Central Mix

Requires sixteen hauling units for central mix

One  $7\frac{1}{2}$ -yd. Mixer

### Paver Mix

Requires 24 units for paver mix

Two 34E Pavers

### With Central Mix

Loading is faster, unloading is faster, and less time is lost at point of deposit.

The story of the truck haul cost saving of plant mixed concrete is paralleled by the saving in the cost of processing. With central mix of three aggregates and one cement, only one man is required for batching against two to five for two 34E Paver jobs. One man can batch a complete  $7\frac{1}{2}$ -cu. yd. load of two sizes of stone, one sand, one cement, and one water, in the course of one minute.

Only one mixer operator, one oiler, and one foreman, are required against double the number for two pavers. The cost of loading bins, etc., will vary from project to project but even here, larger buckets, large cement hoppers, large passageways and large weigh units lead to less cost in loading bins with aggregate and sand—the simplified water supply also saves in time and transportation.

(Continued on page 65)



● With mixer plant set a trifle higher, truck mixers can be loaded with central-mix and used for carrying concrete.

## COST OF HAULING EQUIPMENT

### Dry Batching

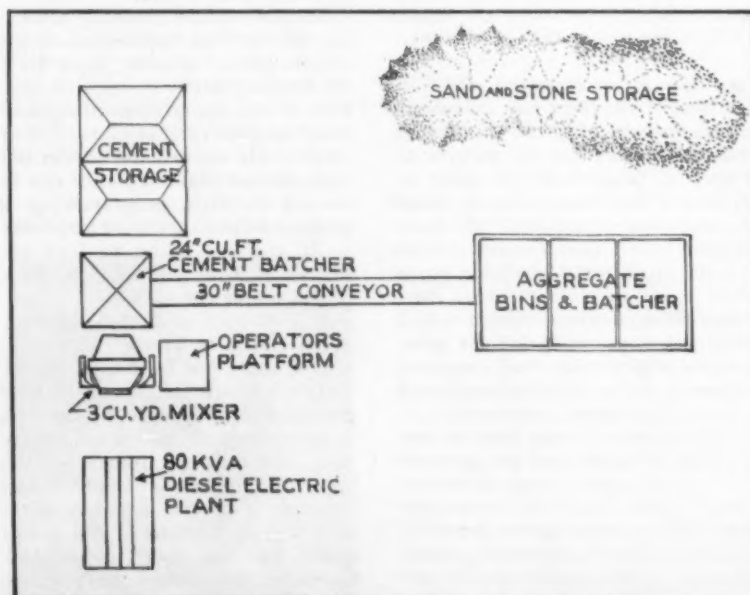
5 Compartment Body	\$ 1600.
Truck	8000.
	\$ 9600. x 24 units—\$230,400.
7 Yard Capacity Concrete	
Carrying Body	\$ 3700.
Truck	8000.
	\$11,700. x 16 units—\$187,200.

Equipment Saving over  
DRY BATCHING \$ 43,200.

### Agitated Delivery

7 Yard Capacity Agitator	\$ 5000.
Truck	8000.
	\$13,000. x 16
	\$208,000.

Equipment Saving over  
DRY BATCHING \$ 22,400.



● A batching and mixing plant for temporary setup on a concrete road project.

## COUNTY OFFICIALS COUNSELED ON EQUIPMENT

Five equipment specialists formed a panel at the National Highway Conference for County Engineers and Officials to describe some of the newest advances in equipment for county road operations.

H. Dale Clark of Caterpillar Tractor Co. told the audience that machines in the future are going to be somewhat more powerful for any given size, and that they will be easier to operate. But they will require entirely different operating techniques than those of even ten years ago.

"You can't operate a 1958 machine with 1948 techniques," he said. Tomorrow's machines will be improved to increase productivity, he predicted, but the key to productivity will still be the correct machine for the job at hand. Another sign of the future—more and more special-purpose machines and attachments.

"Under the right conditions," Mr. Clark pointed out as an example, "a special-purpose bucket will regularly produce 20 to 30 percent more material than a bucket less suited to the material or operating conditions."

This means that engineers will have to become more proficient in the selection of equipment for individual needs.

He urged the county officials not only to keep records on productivity and hourly costs of specific machines, but to sit down and analyze those costs. Finally, he said, planned mechanical servicing programs would be a requirement in the future, with trained people and a philosophy of preventive maintenance always in mind.

Otto C. Rollman, consulting engineer with the Construction Machinery Division of Allis-Chalmers Manufacturing Company, outlined criteria by which a county official could select excavating equipment to meet his needs. Before selecting equipment, he pointed out, they should ask themselves what kind of work the machine would be pitted against, its ability to resist abuse and breakdowns, its versatility and the ease by which it can be operated and serviced. As for costs, the official should consider, not only the least *first* cost, but also the least *operating* cost and the least *maintenance and repair* cost.

(Continued from page 52)  
ty for the upkeep of this capillary system and for its further development to keep pace with the increasing transportation needs of the nation falls upon county engineers.

"I want to assure you of our interest in the local road and the local road builder—and our continuing effort to the end that the ultimate needs of the roads, out where they reach people and individuals—will always have a top place in any activity in which ARBA engages," said Steelman.

● *Counties vs. Planning.* The inclusion of county roads in overall comprehensive highway planning was the subject of an address by Oscar M. Gunderson, planning engineer of the Wayne County Road Commission (Michigan). Mr. Gunderson noted that county officials are drawn into the planning procedure to an increasing extent these days, either as principals in which they are responsible for the planning of highways around congested urban areas, or as participants in a statewide planning endeavor.

"Every county must have a master plan of highways," he declared.

"I do not mean a map of conventional road classification as provided for in several states, but rather a target for the ultimate pattern of roads in that county. Such a pattern should be established to correspond with anticipated land use,

to insure orderly development of the roads and the land, and to protect right-of-way requirements."

Such a master plan will concern itself with available funds, with an actual physical inventory of the existing highway network, with standards for facilities adequate to carry the anticipated traffic loads, and with coordination of the master plan of the county with other levels of government involved.

"Don't Play by Ear"

Methods of determining priority for future road improvements was the subject of another paper by J. W. Spencer, highway research engineer at the Department of Agricultural Engineering at Cornell University. He warned the county officials present that they must not be swayed in their programming of projects by pressure from taxpayers.

"If you are going to lead the orchestra, you will have to turn your back to the crowd."

It is true, he said, that the engineer's job is to please the public, but he must not be misled by the noisy demands of special-interest groups. Public opinion, he asserted, is more than 25 names on a petition. As long as county officials yield to this sort of sporadic and minority pressure, highway planning will be haphazard and inadequate for the total population. Planning, must move onto a factual basis and one which does not force the engineer to "play by ear."

● *Determining Priorities.* Two considerations determine highway project priority, Professor Spencer said—the *condition* of the road and the *importance* of the road. The methods used to determine these two elements must be simple, valid, objective and understandable.

In determining the importance of a secondary road, the county official will be concerned with not only its traffic count, but the vital functions it serves, such as school bus transportation, milk pick-up, and RFD mail delivery, as well as its strategic position (perhaps as a connecting link to other highways).

A variety of rating systems exist for determining road condition. Professor Spencer described one in which width was given an importance of 30 points; alignment and grade, an importance of 25 points; surface characteristics, 10 points; and structural adequacy 35 points—for a total of 100 points.

● *Problems Stemming from Interstate Routes.* Construction of the National Interstate System throughout the country will affect county engineers to a greater extent in the months ahead, A. C. Leonard, chief, Secondary Roads Branch of the Bureau of Public Roads, said. The 41,000-mile network will cross or penetrate 37 percent of the nation's counties, and will disrupt traffic patterns of numerous counties.

(Continued on page 76)

## READY MIX CONCRETE

(Continued from page 63)

### Cost of Plant

Not only does central mix save in cost of labor, but the cost of equipment is also less. A 7½-cu. yd. mixer with plant costs much less than two 34E pavers and the accompanying batching plants; probably from \$50,000 to \$85,000 less, where all the equipment is modern in each instance.

There are other savings due to added flexibility of operations.

There are many cases of discontinuity of pavement slabs,—some due to subgrade preparations,—some due to bridges. Also, culverts, clover leaves, access toll gates and appurtenances make many moves necessary. It is irksome to move a paver in for a small stretch. It is also difficult to pave under bridges. These little jobs can all be handled with truck mixers or open carrier bodies. When the main job is finished—a small mixer can be left behind as a stationary central plant for clearing up the unavoidable odds and ends.

Let us consider one more method of increasing flexibility with agitated or non-agitated hauling units on paving work. When paving at the most remote point the Contractor does not have enough hauling equipment to keep his mixing plant busy. With central mixed concrete he can use some of his vehicles for short fast haul work on widening, clover leaves, etc., near the plant to better absorb that capacity. When the paving is close to the mixing plant some of the Contractor's trucks can work on remote sections and sections taking a long time to deposit such as curb and gutter, bridge work with bucket and crane deposit, etc. This method balances the number of trucks required to fit closely the plant capacity. The frequent moving of a paver from one location to another is thereby avoided.

A further saving can be computed by increasing the size of delivery unit to eight or nine cubic yards thereby further cutting the number of trucks and drivers.

As the new highway program gets into full swing, the economy of large contracts becomes more apparent. Larger concrete mixers are now being used for central mix concrete for highway construction. Delivery units capable of carrying 8 or 9 cu. yd. emphasize progress along

these lines both in respect to speed of construction and economy as well. These plants are not limited to paving of roads and airports, but can find their way into other large projects.

Well controlled portable central mixing plants offer a new field for the Ready Mixed Concrete Industry in Highway paving. The principles of quality control used in many types of manufacture are applicable to the manufacture of concrete. Testing tools are available that will point out to management errors in the manufacture of his concrete and management can then go about eliminating the errors. The central mixer, together with mixer testing is one of the keys towards quality.

### Armstrong, Bonny Receive Moles Awards

James F. Armstrong of (710 Park Avenue) New York City and John Bruce Bonny of Boise, Idaho, were named as the 1959 recipients of the awards given annually by The Moles for "outstanding achievement in construction."

The Moles is an association of leaders in tunneling, dam-building and heavy-construction. Formal presentation will be at the annual Moles' Awards dinner at the Waldorf Astoria Hotel next January 28.

Armstrong and Bonny make up the 19th pair of honorees in a series that started in 1941 and numbers among its winners former President Herbert Hoover, Robert Moses, Admiral Ben Moreell, Peter Kiewit, Harvey Slocum and Lou Perini. The award is considered the highest recognition that can be accorded service to the American construction industry. It is made annually to one member of the society, and one non-member. Armstrong is the member winner. Announcement



James F. Armstrong

was made by Howard A. Collins, president.

Mr. Armstrong is vice president of the Peter F. Connolly Company, and has been in heavy construction more than a half-century, with a great deal of his work being in the field of pneumatic caissons for bridge foundations. In addition to his work with the Connolly firm, he has been associated with the Arthur McMullen Co., Senior & Palmer Inc., and the Walsh Construction Co. in metropolitan bridge installations.



John B. Bonny

Mr. Bonny is vice president and general manager of Morrison-Knudsen Company, Inc., which carries on world-wide operations from its Boise headquarters. Since 1952 he has been virtually "commuting" between this country and French Morocco, Iran and Iraq, and in this hemisphere he flies more than 200,000 miles a year in the U.S., Canada, Alaska and Mexico. During 1958 M-K has had more than 200 separate contracts in progress in the U.S. and 18 foreign countries. Bonny is a University of California graduate, and has been with M-K since 1931.

### New York Traffic Flow

A traffic flow map for 1957 volumes in New York state has been prepared and is available on request to the New York department of public works, State Office Building, Albany, New York. Price \$1.00. Address requests to the Bureau of Accounts and Finance in this department.

The 1957 map shows the general average of volumes for all accounting stations. Volumes were up 2 percent in a year's time, the largest increase being on the Thruway with 14.2 percent.



Take it from the man in the driver's seat... here are big reasons

# why operators recommend ...to increase your daily



▲ "The International Payscraper does not nose over or up in tight spots," states Operator Cecil Dickson, for C. & Z. Construction Co., Memphis, Tenn. The three "75's" in this fleet each get a heaped 22-yard load in 25-32 seconds—with the TD-24 as pusher. The job: building farm-to-market road near Covington, Tenn.

Operating safety is essential on mountain terrain. Ripon Construction Co., working near Weaverville, California, appreciate International "75" Payscraper safety—handling a sub-contract on a road in mountainous Trinity County, with three "75's" and two TD-24's for pusher power. Cuts run to 75 feet deep!



# Payscrapers production!

Riding on the shock-absorbing, deep-padded seat, the International Payscraper® operator soon learns he can cross rough spots—ascend or descend steep pitches, loaded or empty—without neck-snapping, spine-smacking jolting or bouncing. He practically gets automotive riding comfort!

When he needs positive braking, he has powerful, heavy-duty four-wheel air brakes—synchronized on both tractor and scraper wheels—to decelerate and stop surely, even with heap loads on steep grades. And for “walking” the rig through soggy going, he has auxiliary hand-braking of the individual drive wheels!

Guiding a big earthmover is no longer an athletic event—no longer demands “muscle” or tussle! The Payscraper gives him exclusive Hydro-Steer—hydraulic steering powered for smooth, positive one-hand turns! Even the clutch is air-assisted for operating ease and fast, positive action!

And an operator has no fear of “nose-diving” or jack-knifing—not with International Payscraper design! The oscillating hitch assembly and forward pitched spindle prevents these machine contortions! Low center of gravity means extra stability, too, on uneven terrain.

These are big reasons why operators have the confidence to use full Payscraper power and speed—to give you full capacity and cycle-speeding loading, hauling, and return!



This new TD-20 is pusher for a pair of fast-loading “55” Payscrapers—on a street improvement project in Denver. Horn Construction Co. is the contractor.

“Our three ‘55’ Payscrapers are best for our land clearing and stripping needs in this sandy area—and we compared thoroughly with competitive machines,” states Tom Hutchinson, for Hutchinson Bros., Inc., Pompano Beach, Fla. “We like the way the ‘55’s’ boil up a full load fast; then get to the fill and back quick.”



Get in the driver's seat—get the operator's feel of International Payscraper performance. See for yourself what a big factor complete operating ease and confidence can be in increasing earthmover capacity! See your International Construction Distributor for a demonstration!



**International®  
Construction  
Equipment**

International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill.

**A COMPLETE POWER PACKAGE:** Crawler and Wheel Tractors...Self-Propelled Scrapers and Bottom Dump Wagons...Crawlers and Rubber-Tired Loaders...Off-Highway Haulers...Diesel and Carbureted Engines...Motor Trucks...Farm Tractors and Equipment.



# NEW International® Drott with Four-In-One

**CAPACITY...to outload 100 hp  
"single-action" rigs  
PLUS VERSATILITY UNLIMITED...  
of exclusive clam-action**

Sized, powered, geared, and controlled to decisively outproduce any "single-action" loader in the 100-hp field—the new 2¼ cu yd TD-15 4-In-1 gives you exclusive International Drott clamshell action!

Here's new big-job-sized versatility unlimited! Simply move the selector lever from the tractor seat with fingertip ease—to get any one of four big-capacity machine actions needed. On big job after big job, the TD-15 4-In-1 can replace costly limited-action machines one after another!

And whether this 4-In-1 replaces four or forty machine actions for you, you get it for one moderate price!

Smooth, years-proved, 115 hp 6-cylinder International diesel engine in the new TD-15 4-In-1 gives you full advantage of increased hydraulic system capacity—of new 6-speed, full-reverse transmission mobility—of new cycle-speeding forward-reverse Shuttle-Bar control!

Correct balance and long-track stability eliminate the need for counterweighting the TD-15 4-In-1. Track length on the ground is a full 98¾ inches!

There's only one way to size-up new TD-15 4-In-1 performance—to measure its job range and capacity—to compare its money-making capabilities to a yard-full of one-purpose rigs. That's to get on the deep-cushioned seat and prove to yourself what it can do. See your International Drott Distributor for a demonstration!



**"Concrete-bucking" pry-action break-out** breaks up, digs up, and loads out old pavement—gives a big profit-advantage to the contractor, over single-action rigs that lack 4-In-1 pry-over-shoe power! The new TD-15 4-In-1 exerts the tremendous break-out force of 42,650 lbs.

As a **"carry-type scraper"** with cutting edge grading-off an even layer, and "bailing" the bucket full, the new TD-15 4-In-1 gives you a multitude of profitable uses. It can grade, strip, spread, or load-in-place a wide variety of materials with amazing accuracy!

International Harvester Company, Chicago 1, Illinois  
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



**INTERNATIONAL®  
DROTT®**

... for more details circle 264  
on enclosed return postal card



# TD-15



**You'd need a heavy-duty blade outfit to match the earth-rolling material-digging performance of the new TD-15 4-in-1!** You regulate dozing depth accurately with "radius control," hydraulically, from the tractor seat.

**"Back-dragging" with exclusive clamshell action—new TD-15 4-in-1 reduces time and cost of "dressing" a bank—or pulling down material by the truckload! Shuttle-Bar control speeds up back-and-forth cycles on jobs like this!**





# WORLD'S PAVING RECORD!

by Denton Construction Company with 3 Rex Pavers



**LEADERSHIP  
IN ACTION**

Denton Construction Company is owner of five Rex Pavers.

It's happened! 6029 linear feet in just 12½ hours—over a mile and a third a day! That's the amazing rate achieved on a recent Michigan highway job with concrete pavement 24' wide—9" thick. Denton Construction Company, Detroit, did it! And it's believed to be an all-time world's record!

Handling this Herculean production were three Rex Pavers. These worked without letup as a perfect team, taking the batches as fast as the trucks could

bring them in. Production per hour per paver averaged 107 cu. yd. over the entire day.

One of the many Rex Paver features which helped total up such high, continuous production is Rex Hydrocycle®. This advanced control literally *automates* paver operation for split-second coordination of the complete paver cycle. It eliminates the lost time of manual operation and control.



Big picture catalog on Rex Pavers is available from your Rex Distributor or CHAIN Belt Company, 4632 W. Greenfield Ave., Milwaukee 1, Wis.

**REX®**  
CONSTRUCTION MACHINERY

... for more details circle 249 on enclosed return postal card



## CARE AND MAINTENANCE OF Wire Rope



- There is only one correct method of uncoiling a rope. The end should be held and the coil rolled on the ground like a hoop (as above).

*What you and your job managers, operators and mechanics need to know about an item that can help you make more profit if treated right.*

**By A. J. King**

Chief Sales Engineer, Wire Rope Products  
American Steel & Wire Division, United States Steel  
Corporation

**W**IRE ROPE is a complex machine—a highly specialized tool—composed of many working parts. These parts are designed and manufactured with great precision to bear a definite relation one to another.

However, like any machine, even the finest wire rope can be destroyed quickly through faulty installation and use, or through improper care and maintenance. Therefore, although rugged in character, its length of service will depend entirely upon its treatment during installation and throughout its useful life.

Many a reel of wire rope has been irreparably damaged through careless dumping from cars or trucks before it was ever touched by the consignee. Reels of wire rope should never be dropped from conveyances, as the weight of the rope will collapse the drum on which it is wound causing the rope to cut in with subsequent severe damage when unreeling for installation.

If the rope is not used immediately, it should be kept fully protected from the weather and away from all corrosive fumes. The outer layer of rope should be protected by a coating of wire rope lubricant.

When removing wire rope from a reel or coil, it is important that the reel or coil rotate as the rope unwinds. Otherwise, kinking will result and, once this occurs, the rope is damaged beyond repair.

Likewise, it is good practice, when cutting wire rope from a reel prior to installing, to seize or bind the ends of the rope. This prevents untwisting and preserves the rope structure.

● **Break In Easy.** Upon installation of a new wire rope, it is advisable to operate it with a light load or no load for a short period of time. This "breaking-in" process gives the component parts an opportunity to adjust themselves to the conditions of operation and will almost assuredly lengthen rope life.

During use, avoid overwinding and crosswinding. It is not good practice to have more than one layer of rope on a drum. If this cannot be avoided, the succeeding layers should not crosswind, but should wind regularly in the groove formed by the preceding layer.

Avoid sudden stresses caused by jerking a wire rope, as these may exceed the strength of the rope and break it. Even if the rope does not break, rapid deterioration and shorter rope life will often result. Loads should always be gradually applied and the rate of acceleration should be kept as uniform as possible.

One of the commonest causes of fatigue breaks is the use of under-size sheaves and drums. Fatigue effects of bending are manifested by the tendency of the wires to break square off, and the use of small sheaves and drums will cause a permanent set in a heavily loaded rope.

Reverse bends cause excessive fatigue and should be avoided whenever possible. When a reverse bend is necessary, larger sheaves are required than in the case where the rope bends in one direction only.

At times, it is beneficial to turn a rope end for end in order to obtain maximum benefits. However, it must be done before the most heavily worn end has deteriorated to the extent that it becomes hazardous a short time after reversal for realization of benefits. Periodic cuts at

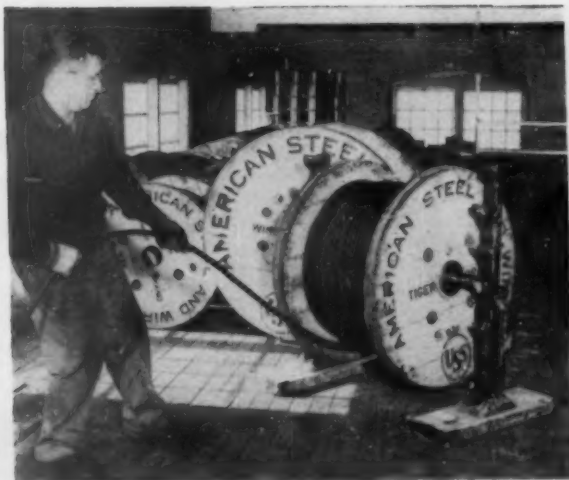


Figure 1



Figure 2

## How to Unreel Wire Rope

- 1 The reel may be mounted on a shaft supported by two jacks as in Fig. 1. The rope is then pulled from the reel by a workman holding the end of the rope and walking away from the reel which rotates as the rope unwinds.
- 2 The reel may be mounted on an unreeling stand as shown in Fig. 2. It is then unwound in the same manner as described above. Care must be exercised to keep the rope under sufficient tension to prevent slack accumulating and the rope dropping below the lower reel head.
- 3 The end of the rope may be held and the reel rolled along the ground as in Fig. 3.

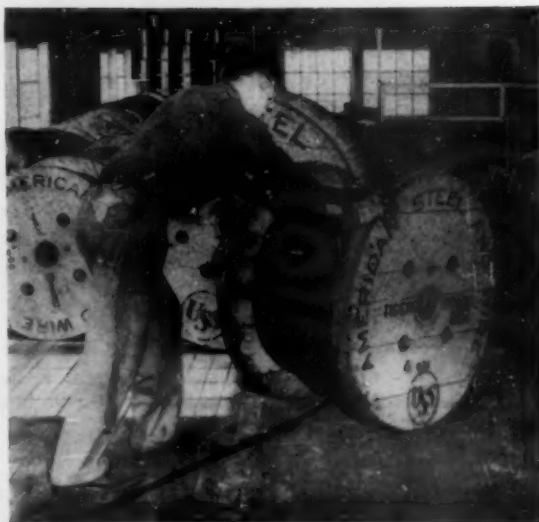


Figure 3

end fastenings are exceedingly effective in eliminating concentrated wear in certain sections of a rope—distributing this deterioration over a greater portion of the length—thereby extending rope life.

Make certain that groove diameters of sheaves and drums are of proper size. Grooves that are too narrow prevent proper seating and will pinch and distort the rope, causing wear and internal stress. With overly-wide grooves, the rope will flatten from lack of support.

Wire ropes operating over sheaves and drums out of alignment are detrimental to service and economy. On installations where the rope passes over a lead sheave and onto a drum, it is important that the lead sheave be located at a suffi-

cient distance from the drum to maintain the proper "Fleet-Angle" at all times.

Avoid dragging rope over obstacles. The use of supporting sheaves and rollers decreases the wear on rope and, spotted at irregular intervals, tends to dampen vibration on long inclines or where the rope is operated at a comparatively high speed.

Like any machine, wire rope demands periodic application of a good grade of wire rope lubricant. An internally corroded or rusty rope is a definite liability and a safety hazard.

● *Frequent Check-Over.* Periodic inspection of a wire rope is neces-

sary in view of the dangers and damage involved should a rope break prematurely or without warning. One of the outstanding features of wire rope as a tensile device is that it consists of multiple members. If a rope has not been abused, it gives warning of the approach of eventual failure by the progressive development of broken wires, which can be easily detected a considerable time before its ultimate in service is reached. Failure of all units in a wire rope will not usually occur simultaneously. The fact that progression of fatigue and wear develops gradually is the reason breaks occur successively and not simultaneously. This characteristic is what makes wire rope the most dependable tensile mechanism



Contractors: J. J. Welcome & Sons Construction Company, Redmond, Washington

*Double-barreled culvert on Washington's U.S. 101...*

## they chose **concrete pipe** for maximum strength under 30' overburden

Built to Washington State Highway Department specifications, twin lines of 48" extra-strength reinforced concrete pipe carry the heavy load of the high fill. And resistance of the concrete to the overburden will *increase*. Concrete is the one material that actually continues to *gain* strength year by year.

Moderate in cost, concrete is always readily available to save you time and dollars. On this Washington job, the concrete pipe was produced in Olympia just ten miles away.

And for long-term economy—nothing else lasts like concrete. There's high resistance to abrasive wear. Concrete can't rust. And

smooth pipe walls assure maximum flow.

Today, engineers everywhere are solving their difficult pipe problems with concrete—for pipe lines of all kinds.

### **PORTLAND CEMENT ASSOCIATION**

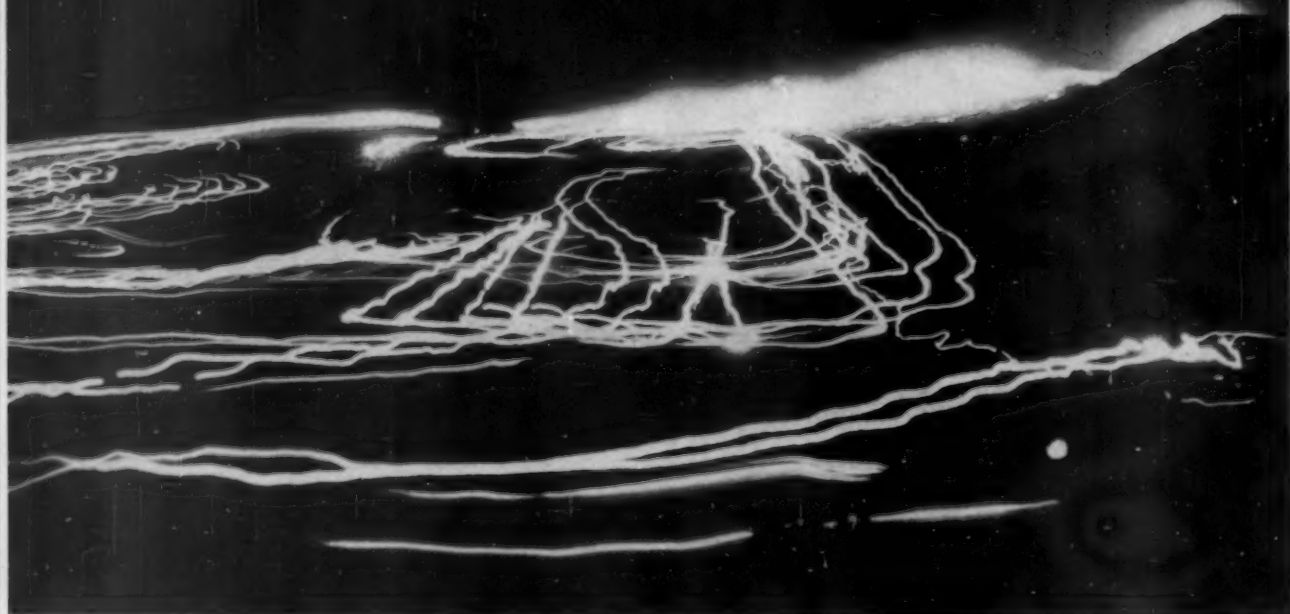
*A national organization to improve and extend the uses of concrete*



... for more details circle 272 on enclosed return postal card

With 4 big power plants lighting work area, dirtmoving continued 20 hr a day. In just 6 of these long days, 2 of the project's contractors, Collins and Teneffs, moved total of 450,000 yd of sand, clay, some rock. Each of the 3 firms handled  $\frac{1}{3}$  of basic 6,316,870-yd project, that stretched 40 miles from Jamestown to outskirts of Valley City. Firms then began work as combine on 2,300,000-yd job building bypass around Valley City. U.S. 10 is now part of new Interstate Highway System, designed for speeds to 70 mph, sight distances of 600'. Time exposure below shows work area at night.

## Photo report on new U.S. 10— where earthmoving pace is 75,000 yards a day



**K**ey to 75,000 cu yd per day production relocating U.S. 10 in North Dakota is *enough of right kind of equipment, properly managed*. 3 skilled contractors (Teneffs Const. Co., Wm. Collins & Sons, Inc., Schultz & Lindsay Co., Inc.) used 99 major pieces of equipment—including 35 scrapers, 12 graders, 39 tractors. Bulk of earthmoving was done with LeTourneau-Westinghouse Tournapulls®...12 "C's" with 18-yd Fullpak® scrapers; eight 27-yd "B's", plus older models.





Fast-loading B Fullpaks moved 10 big loads an hour on 1800' one-way cycles. C Fullpaks, on shorter, 1300' hauls, made 14 trips an hour. Main pushers were D-8's, D-9's. Sup't. Lawrence L. Miller praises Tournapulls, says: "They're doing a fine job for us. And the 'C's' can't be beat. We use them for all types of work, including finishing. They're rugged and dependable." On one phase of job, C Fullpaks loaded in average of 22 seconds, completing 4425' cycles in less than 4 minutes.



Traffic on U.S. 10 will increase 400% by 1975, experts say . . . and Tournapulls gave sample of things to come with heavy traffic on haul road. Fast-moving "B" (center) has speeds to 28.7 mph. New "B's" are available with torque converter, 335 hp, 31.7 mph speed. 210-hp "C" can move at 29.9 mph. Other speed features of 'Pulls† include instant electric control of bowl, apron, tailgate, and steering action . . . and fast-loading bowl, low and wide for quick, nearly horizontal in-rush of dirt.



Four big Adams† 660 motor graders maintained haul roads for high-speed hauling, kept fill areas workable, did finishing on top of 4-lane, 48' roadway. Purchased especially for this project was a torque-converter 190-hp POWER-Flow®. Sup't. Miller says: "We like the power and speed of the '660'. Its ruggedness really helps get the job done. It does a fast and accurate grading job. And the torque converter in our Power-Flow 660 gives us absolute control over our work, always."



"Jack-of-all jobs" on the huge project was a rubber-tired Tournatractor® — push-loading, dozing, towing. Because it goes anywhere, under its own power — at speeds to 17.2 mph — Tournatractor is perfect utility tractor on big, spread-out jobs like this one. In minutes it can run back to handle a backfill job, or run ahead for preparatory work. Contact your LeTourneau-Westinghouse Distributor for facts and figures on Tournapulls, Tournatractor, and Adams graders. No obligation.

†Trademark BPC/CTG-1688-DCJ-2



**LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS**

**A Subsidiary of Westinghouse Air Brake Company**

... for more details circle 267 on enclosed return postal card **Where quality is a habit**

## ARBA'S CONFERENCE

(Continued from page 65)

The 1956 Congress declared, he pointed out, the Interstate System should be so located that local needs would be given equal consideration with the needs of interstate commerce. (It is this requirement which has boosted the estimated cost of constructing the Interstate System so substantially.)

County engineers are responsible for many of the cross-roads and the feeder highways which will lead on to the Interstate System. They can avoid a great deal of difficulty if they learn what effect the Interstate routes will have upon their local jurisdictions, traffic-wise and construction-wise, Mr. Leonard said. He warned officials that they must plan now to avoid congestion on their own routes, especially those located near Interstate System interchanges. Must provide for additional traffic, and take measures now which will prevent the development of traffic hazards at these strategic points. This means the acquisition of wider rights-of-way,

and perhaps the zoning of certain areas to prevent the mushrooming of businesses which do not directly serve the traveling public.

"Another foreseeable problem has to do with the structural adequacy of the base and surface of the connecting crossroads, to carry the increased frequency of heavy truck loadings to which they will be subjected," Mr. Leonard pointed out. This means more engineering of a more complex nature and problems which heretofore county engineers in some localities have not had to concern themselves with.

● *An Understanding with the Contractor.* County officials are going to have problems, too, when called upon to provide haul and detour roads during construction of the big Interstate projects. This will call for planning so that service roads are constructed adequately.

"This is a matter on which there should be full understanding between the state, county and the contractor at the time contracts are awarded. Perhaps the standard provisions in the specifications need amplification beyond the point of saying who is to maintain the detour or the haul road, by specifying

what shall be done to prepare the road for such use and who is to stand the cost.

"In some instances, the county might consider adding the base material while the state or contractor would provide and maintain the bituminous surfacing large amounts of sub-base and base materials are supplied from borrow pits and hauled over local roads to major routes under construction, this haul road problem is not going to be a small one for some counties."

Leonard cited as an example the construction of the Illinois toll roads, under an arrangement whereby the restoration of Cook County roads which were damaged by Tollway construction was assured. Under that plan the Toll Road Authority withheld ten percent of payment to contractors on toll road jobs, until the repairs were made to the public roads damaged by the heavy trucks and machinery.

"The point to remember," Mr. Leonard said, "is that if you anticipate the problems which will unquestionably force you during the period of construction of the Interstate System, and prepare for them in advance, they will be not so great and may not arise at all."

# "RAM" EATS SNOW-*fast!*



Ram Rotary Snow Plow with "PAYLOADER" Tractor at work last January in Waukegan, Ill. The Ram loaded 10-yard trucks in less than 60 seconds each. Downtown streets were cleared overnight after a 2 day blizzard with 3 to 4 foot drifts which paralyzed traffic.

Ask your "PAYLOADER" Distributor—or write direct to us for literature

**RAM EQUIPMENT CO., INC.** 2803 West Broadway  
Minneapolis 27, Minnesota

● Wet or dry . . . light, packed or icy . . . the "Ram" Rotary Snow Plow on a "PAYLOADER" Tractor loads a 10-yd. truck under 60 seconds—keeps 9 trucks busy.

It's fascinating to watch a Ram Rotary Snow Plow with a "PAYLOADER" Tractor walk steadily along the street and literally eat up the snow. Wind packed drifts or hard, icy piles, it makes no difference—and the Ram *positively will not clog* with wet snow. For clearing city streets it keeps a fleet of trucks on the dead run. For highway clearing it blows snow sideways up to 100 feet. You can't jam a Ram—it's a glutton for snow.

The Ram Rotary Snow Plow is a husky front mounted, independently powered unit, interchangeable with buckets on the "PAYLOADER" Tractor, equipped with stack for truck loading or blowing snow up to 100 feet. Adjustable skids, replaceable cutting edge, safety shear pins throughout. Built in 3 sizes, it's a rugged power packed unit proven by years of use.



"You're  
Right  
with a  
RAM"

- ★ ROTARY SNOW FLOWS
- ★ BLACKTOP SPREADERS
- ★ STREET SWEEPERS
- ★ LEAF MACHINES

Designed especially for the "PAYLOADER" Tractor. Sold by all "PAYLOADER" Tractor Distributors.

. . . for more details circle 473 on enclosed return postal card



PIONEERS ROADWAYS



STRIPS BLACKTOP

## How you can speed dozing jobs ...cut non-productive costs

To get a work combination that's ready for profitable action anywhere... anytime... check the 210 hp LeTourneau-Westinghouse Tournatractor®. This rubber-tired tractor can drive job-to-job at a moment's notice. Operator just flips instant-shift lever and he's on his way — over highways or cross-country. Big, low-pressure tires do no damage to pavement, bridges, or RR tracks.

### Handles wide variety of jobs

Equipped with bulldozer or Angle-dozer® blade, versatile Tournatractor does pioneering, ditching, backsloping... levels and maintains dumps and fills... strips blacktop... speeds through dozens of other clean-up and maintenance jobs. Also, Tournatractor's power and maneuverability make it an excellent pusher. And it can be used effectively as a pull-type scraper prime-mover. Use its speed and maneuverability, also, to pull Rooters, Sheep's Foot rollers, and other heavy equipment.

### Simple, safe operation

With electric push-button controls grouped handily in front of operator, he can keep his eyes on the ground. And, sitting up front, operator can see where he's going, what he's doing — for sure, safe control at all times. Big, heavy-duty air brakes on all four wheels provide 940

square inches of braking surface on each wheel. That's more braking surface *per wheel* than most comparable units have *on the entire machine*. Operator can effectively use all of Tournatractor's speed and mobility with confidence and safety.

### Costs less to maintain

With enclosed anti-friction drive and fewer moving parts, Tournatractor is better protected from wear — will give you higher efficiency through many more hard-working hours of continuous service.

Tournatractor has only 4 rubber-tired wheels compared to about 562 crawler track parts. In many materials, tires outwear tracks by as much as 2-to-1. In highly abrasive materials, tires give as much as 4 times more service than tracks. Also, with extensive oil enclosures, plus anti-friction bearings throughout, maintenance time is much less.

### See Tournatractor in action

Why not investigate "work-and-run" Tournatractor's effectiveness for your projects? You'll be amazed at the speed and efficiency in which this rubber-tired tractor can handle scattered dozing and pusher assignments. We'll be glad to arrange a demonstration. Call or write for complete details.

CT-1494-DC-1



HANDLES PRODUCTION  
DIRTMOVING



MAKES EMERGENCY  
ROAD REPAIRS



DRIVES JOB-TO-JOB



**LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS**

A Subsidiary of Westinghouse Air Brake Company

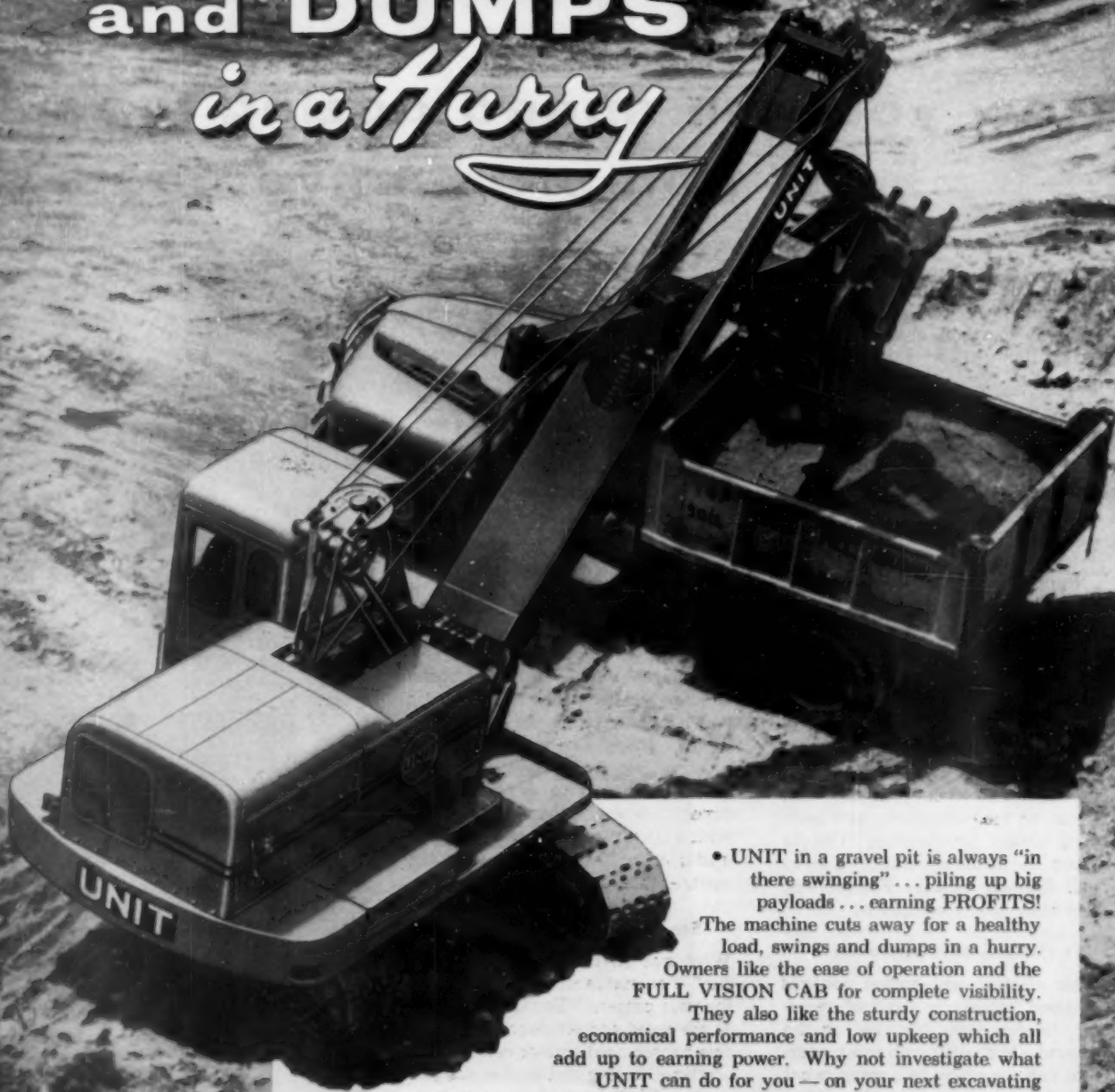
**Where quality is a habit**

... for more details circle 267 on enclosed return postal card





# DIGS and DUMPS *in a Hurry*



- UNIT in a gravel pit is always "in there swinging" . . . piling up big payloads . . . earning PROFITS!

The machine cuts away for a healthy load, swings and dumps in a hurry.

Owners like the ease of operation and the **FULL VISION CAB** for complete visibility.

They also like the sturdy construction, economical performance and low upkeep which all add up to earning power. Why not investigate what **UNIT** can do for you — on your next excavating and material handling job? Write for literature.

**UNIT CRANE and SHOVEL CORP.**

6407 W. Burnham St., Milwaukee 19, Wisconsin, U.S.A.

. . . for more details circle 286 on enclosed return postal card

AB-5019



## The Editor Asks... WHY?

Why is it that so many contractors—even some of the biggest and supposedly most knowing in the business—continue to let their field crews ignore the rules of good handling of wire rope. Within the last few weeks this editor, while afield with camera and notebook, has seen reels of cable lying out in the dirt, exposed to rain and often caked over with a dust layer.

Also conspicuous on many jobs is a lack of any labor-saving storage and dispensing facility, whereby lengths of cable can be quickly unreeled and cut for use when wanted.

This negative outburst is made in an attempt to jar some of the contracting people who receive

Roads and Streets into giving a hearing to the manufacturer's advice. What Mr. King says here has been said many times in print before. It often takes an order from the boss, and plenty of follow-up, to insure that costly supply items such as wire rope are properly handled.

Cable alone is no small item of cost, and mechanical trouble or breakdowns caused by cable mishandling may run into big losses.

Where cable is poorly handled, probably poor housekeeping extends to many other job elements.

So, we again ask: "Why?" Are bid prices so high that nobody needs to be concerned with wire rope?

(Continued from page 71)  
that is available for hauling, hoisting, conveying, supporting and strengthening.

A few good rules to follow for

the care and maintenance of wire rope is to make good use of it, care for it, maintain it in proper working order, and it will give you long, efficient and economical service.

### What Happens From Wrong Handling

The incorrect handling of wire rope during its installation is the most common cause of damaging kinks. Care should be taken at all times to avoid kinking, as a kinked rope cannot be restored to its original undamaged condition.



- Kinks start as loops. If the loop shown in Fig. 4 is removed before it is pulled tighter, the rope will not be damaged by kinking.

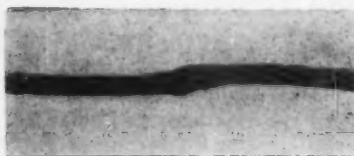


- What happens when the loop is not straightened but is pulled tighter to form a loosening kink. The wires and strands are permanently bent, ruining the rope at this point and unbalancing the tensions in the strands for unknown distances

along the rope in both directions from the kink.



- Figure 6 shows the rope after the kink has been straightened. A permanent set has been placed in the rope which will result in abnormal wear at this point. The wires in the strands have been displaced while the strands have been forced from their proper position.



- The wire rope illustrated in Fig. 7 was kinked and a load was applied. The rope was completely ruined.

### American Iron and Steel Institute Technical Meeting

The American Iron and Steel Institute conducted a regional technical meeting in Chicago on October 22.

The afternoon session, under the chairmanship of W. H. Yeckley, vice president, Youngstown Sheet and Tube Company, was composed of papers on the following:

"Weldability Tests as a Guide to Service Performance of Weldments" by Dr. Robert D. Stout, head, Department of Metallurgy, Lehigh University; "The Ten Commandments of Integrated Packaging and Handling" by H. F. Jacobsen, director, packaging and loading, American Steel & Wire division, United States Steel Corporation; "Continuous Annealing of Tin Plate" by R. A. McClure, general superintendent, Gary Sheet and Tin Mill, United States Steel Corporation; also a film, "Iron Ore from the North," produced by Iron Ore Company of Canada.

The evening session, with Max D. Howell, executive vice president, American Iron and Steel Institute, presiding, consisted of addresses by Fred M. Gillies, chairman, Acme Steel Company; and Reverend Charles M. O'Hara, S.J., assistant to the president, Marquette University.

A HIGHWAY TAXATION COST-BENEFIT ANALYSIS. Special Report 35, Highway Research Board, 2101 Constitution Avenue, Washington, D. C. Price \$1 for this committee research report headed by C. A. Steele, Chairman, Committee on State Highway Finance and Taxation Studies.

## NEW PRODUCTS



Trial Installation of "Pylacons" near Toledo, Ohio

### New Type Traffic Marker

The picture herewith shows the first installation of "Pylacon" traffic directional markers at a busy six-approach intersection in Lucas County, Ohio. It is said that immediate improvement in traffic control was noted, the increased flow amounting to approximately 20%; also that more accurate channeling of traffic is possible than with painted traffic lanes.

The foot-high, rubber molded units with diagonal yellow stripes, impregnated with visualite color for maximum visibility, are made from a special compound of rugged, pliable rubber to withstand the hazards of weather and traffic. They are said to be easy to install; to require slightly less than 5 minutes for installation of each unit, on any type pavement; and that few tools are needed.

Pylacon, Incorporated Toledo, Ohio

For more details circle 101 on  
Enclosed Return Postal Card.

### Power Shovels

Two additions to the Lima line of power shovels, cranes, draglines and pullshovels are designated as Types 64 and 64-SC. Both machines are equipped with the time-tested Lima "precision" air control.

Type 64 has a rated capacity of 40 tons when equipped as a crane. When equipped as a shovel, it has a 22-ft. boom, 17-ft. dipper handle and 1 1/4-cu. yd. dipper. Change-over from shovel to crane, dragline or pullshovel is easily made in the field.

Types 64 and 64-SC have identi-

cal truck bases. Two widths of axles and two lengths of crawler side frames are available. Standard crawler is 13 ft. 3 in. long and 10 ft. 8 in. wide with 30-in. treads. For special crane and dragline service, requiring an extra long, wide crawler, a 17 ft. 1 1/2 in. wide crawler with a spread of 14 feet, and 42-in. treads can be furnished. Counterweight and crawler side frames are removable for meeting highway load restrictions when it is necessary to trail the machine.

Type 64-SC is designed for special crane service and has a rated capacity of 50 tons.

Baldwin-Lima-Hamilton Corporation, Construction Equipment Division, Lima, Ohio

For more details circle 102 on  
Enclosed Return Postal Card.



New Lima Type 64 Power Shovel



M-R-S Manufacturing Co., Florida, Miss.

### 38-CY Scraper Combination

A 38-cu. yd. struck, 48-cu. yd. heaped, capacity scraper combination has been introduced by M-R-S Manufacturing Co. It consists of the M-R-S 250 tractor and the hydraulic powered M-R-S 250 H W. scraper.

The 600-hp. tractor is stated to provide ample power to tow the scraper at speeds up to 34 miles per hour with a substantial power re-

serve for maximum gradability; while the new scraper is stated to be capable of securing large high-density payloads economically in any class of material. An advanced design of positive hydraulic controls for apron, ejector, and bowl hoist give the operator precise control of both loading and dumping.

M-R-S Manufacturing Co., Florida, Miss.

For more details circle 103 on  
Enclosed Return Postal Card.

## 22-Ton Rear Dump

A new rear dump of 22 ton payload capacity has been announced by Euclid. This Model S-12 consists of an overhung engine-type tractor with an Easton-built variable wheel base semi-trailer. The tractor is powered by a 218-hp diesel and is equipped with a 5-speed transmission. Top speed with full payload is 22.6 mph. Tractor and trailer tires are 24.00 x 25, 24 ply rating—they are interchangeable.

Full hydraulic steering enables the tractor to make a full 90-deg turn, and the complete unit can make a non-stop turn in just a little more than its 28 ft. 8 in. length. In dumping position the wheel base is shortened by 5½ feet, which permits a turning width of only 24 feet.

Euclid Division, General Motors Corporation, Cleveland 17, Ohio.

For more details circle 104 on Enclosed Return Postal Card.

## New, Bigger "Gradall" Has 1¼-yd. Capacity

Warner and Swasey Company's new 1¼-yd. "Gradall" can reach 31 ft.-47 ft. with extension boom—and can dig a 23-ft. trench with the extensions. The all-hydraulic excavator has a 360-deg. swing and a 120-deg. boom tilt rotation on the boom's long axis, can lift 14,000 lb. Two 100-hp diesel engines power an individual pump for each of the five arm actions.

Gradall Division, The Warner and Swasey Company; Cleveland 3, Ohio

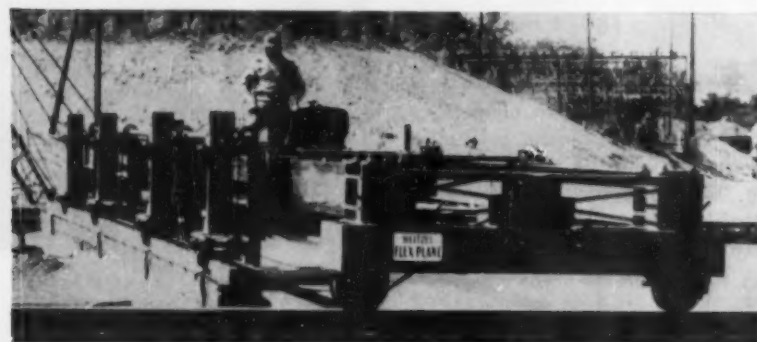
For more details circle 105 on Enclosed Return Postal Card.



Euclid Model S-12 Rear Dump



The New 1¼-yard "Gradall"



Heltzel's New Finishing Machine

## Finishing Machine

A completely new and extremely flexible type bridge and elevated highway deck finishing machine, developed by Heltzel Steel Form and Iron Company, has been designed to finish a wider range of

concrete slabs at greater production speeds.

A single machine is adaptable to 24-ft. to 44-ft. widths, and can be made, with simple changes, to contract to a 16-ft. width. It is assembled of four main components fastened with a new type clamp that

makes it easier to assemble, dismantle and adjust to job application.

New screed mountings and suspension and a new drive reduction are stated to enable the machine to deliver better straight-line action with a minimum of torque and distortion.

Heltzel Steel Form and Iron Company, Warren, Ohio

For more details circle 106 on Enclosed Return Postal Card.

## Tractor Decelerator

A foot-operated decelerator for the Caterpillar D 8 tractor has been made available by Caterpillar Tractor Co. The new component, which permits an operator to slow the engine without using the hand throttle, is an optional attachment for both direct drive and torque converter drive tractors. When

(Continued on page 85)



# Now... 21 yd. struck capacity

STILL MORE PRODUCTIVE CAPACITY  
WITH THE NEW S-18

Up to 30 yds. heaped

325 h.p.

Torqmatic Drive with lock-up

Filtered hydraulic system



## 3 more yards... 25 more h.p.!

With struck capacity increased from 18 to 21 cu. yds., the improved Model S-18 Euclid Scraper now provides even more low-cost earthmoving ability. Payload capacity is 24 cu. yds. at 3:1 slope and 30 yds. at 1:1.

The 325 h.p. diesel, 4-speed Torqmatic Drive and Euclid planetary drive axle enable the S-18 to move big yardage at low cost. Converter lock-up in the Torqmatic assures maximum efficiency on grades and long, high speed hauls.

Quickly responsive, full hydraulic steering and the large rolling radius of 27.00 x 33 tires help make the S-18 a highly maneuverable machine, despite its big capacity. Non-stop 180° turns are made in 36 ft. 4 in.

Hydraulic lever action, with only one short cable for the apron lift, provides fast, easy control of all scraper actions and eliminates downtime and expense from cable breakage. Model S-18 incorporates Euclid's original low bowl design with the structural strength needed for working with the biggest pusher tractors. The 4-section cutting blade is adjustable and reversible for efficient loading in any scraper material and longer blade life.

See your Euclid dealer for facts and figures on the improved S-18 with 21 yd. struck capacity... he'll be glad to explain the many new production advantages and show you why *Euclids are your best investment.*

**EUCLID Division of General Motors, Cleveland 17, Ohio**



Hydraulic lever action provides fast, independent control of all scraper operations... eliminates downtime and expense due to cable breakage. High apron lift and roll-out ejector shed the load fast and clean. Independent control of bowl, apron and ejector permits controlled spreading of the load.

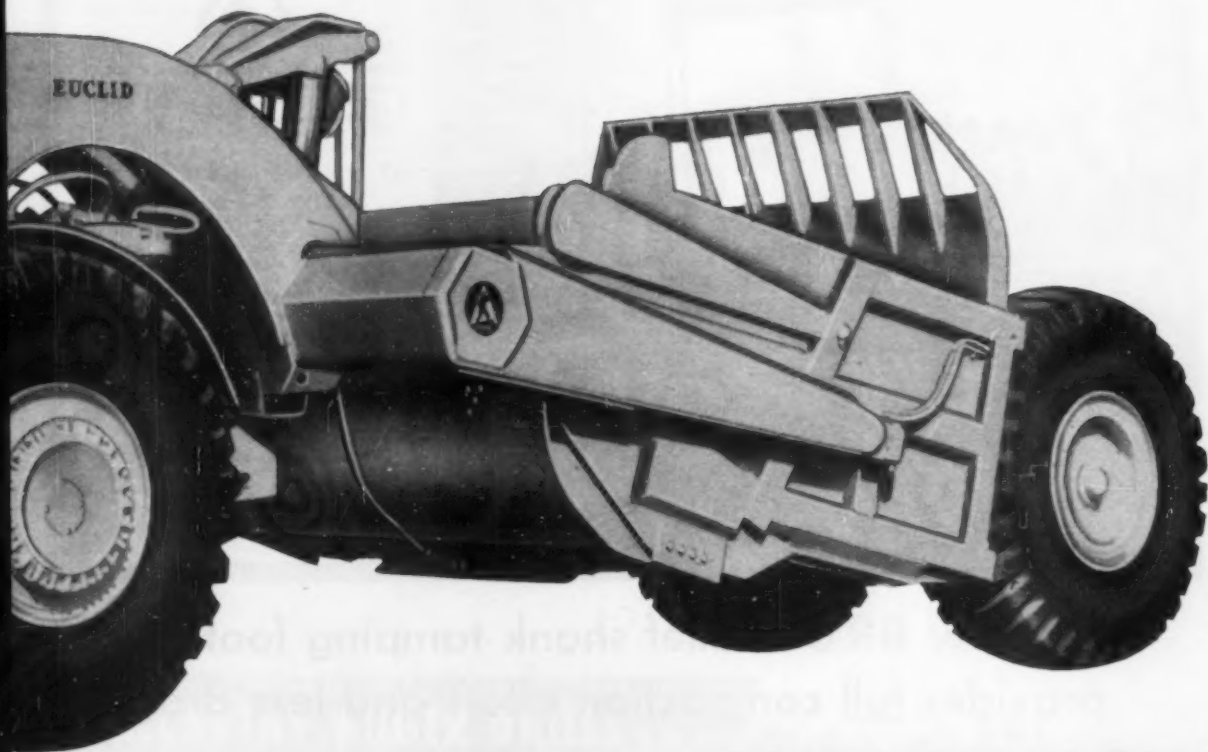


## EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE



# in "EUC" S-18 Scraper



Four identical and reversible blade sections assure long blade life in any material. Sections can be adjusted to provide the most efficient drop-center arrangement for loading a variety of materials from loose sand to heavy clay, shale and ripped rock.

Low, wide bowl—a feature of Euclid scrapers for years—enables the S-18 to carry more pounds of payload. It has the structural strength needed for push loading by the largest, most powerful tractors such as the Euclid TC-12 Twin Crawler.

... for more details circle 256 on enclosed return postal card



Torqmatic Drive pays off in faster cycle time and more production. There's no clutching or loss of momentum when changing to any of the 4 forward speeds. Converter lock-up makes efficient use of engine power on grades and long hauls by providing direct drive.





No area above the **Diamondfoot** comes in contact with the soil to alter psi rating; further, rolling drag and material pick-up are minimized.



The leading and trailing edges of the **Diamondfoot** make easy foot penetration and withdrawal in heavy soils.



Cross-section dimensions of the **Diamondfoot** are greater than any cross-section dimensions of the tapered shank. Full compaction effort is always exerted at the foot face and not dissipated through shank contact.

## New **BROS** relief shank tamping foot provides full compaction effort and less drag

● Stress-relieved shank of the new BROS Diamondfoot design has two major advantages for earthwork compaction. Here's why:

First; to produce the lbs. per sq. in. foot pressure required by subgrade sheepsfoot rolling specifications, the BROS design permits the *full* compaction force of the roller drum to be exerted at the *bottom* of the foot—and not dissipated by shank contact with the soil materials. **That's because the Diamondfoot has a larger cross-section than any cross-section of the reverse tapering shank.**

Second; this design minimizes rolling drag because in penetration and withdrawal, the

Diamondfoot edge design provides the least disturbance to the soil. Too, by reverse tapering, the shank is load relieved and the heavy soil materials have little chance to cling.

Other important features of this engineered Diamondfoot Roller include: Unitized drum and axle; non-adjusting, sealed, self-aligning ball bearings, *outside mounted*. Adjustable and reversible cleaner teeth provide extra long service life.

BROS Diamondfoot Rollers range in sizes from 133 psi to 724 psi foot pressures. Your nearest BROS Dealer has all the details. Or write us. Worldwide sales and service.



### **BROS Incorporated**

ROAD MACHINERY DIVISION

1057 TENTH AVENUE S.E. • MINNEAPOLIS 14, MINNESOTA

1057 TENTH AVE. S.E.  
MINNEAPOLIS 14, MINN.

Write today for the full report on the Ohio tests and for complete new literature describing the new BROS SP-730 pneumatic roller. It's free of cost or obligation!



SHEEPSFOOT  
TAMPERS



ROLL-O-FACTOR



BITUMINOUS  
CIRCULATOR



VIBRA-FACTOR



9-TON SELF-  
PROPELLED ROLLER



9 AND 13-TON  
ROLLERS

... for more details circle 241 on enclosed return postal card

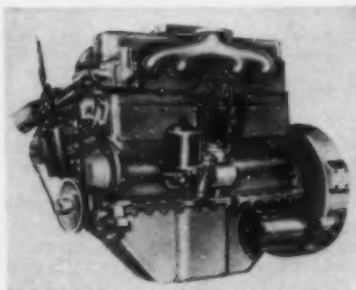
## New Products

(Continued from page 81)

the decelerator is released, the engine returns automatically to the hand throttle setting. Linkage for the foot decelerator is connected to the diesel engine governor, and is entirely independent of the hand throttle setting.

Caterpillar Tractor Co., Peoria, Ill.

For more details circle 107 on  
Enclosed Return Postal Card.



Hercules "DDH" Engine

## High-Speed Diesels

Two new high-speed 6-cylinder diesel engines designed for applications in which speeds of 1800 to 3000 rpm are desired has been introduced by Hercules Motors Corporation. The new "DDH" engines are offered in two sizes with 298 and 339 cu. in. displacement, the former providing up to 112 hp at 3000 rpm, and the latter 122 hp at 3000 rpm.

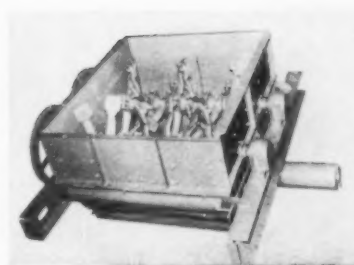
These engines were developed primarily for marine use and for use in modern road and highway service equipment, particularly equipment using hydraulic torque converters which call for engine speeds of approximately 2200 rpm for efficient operation.

Hercules Motors Corporation, 101-11th Street, Canton 2, Ohio

For more details circle 108 on  
Enclosed Return Postal Card.

## Asphalt Mixer

A new asphalt mixer, designed to produce a closely knit mix and uniformity throughout a batch has been announced by Bollard Asphalt Plant Division of Colonial Iron Works. It is of twin-shaft design, with the shanks and tips arranged for spiral "run



New Bollard Asphalt Mixer

around." The high chromium alloy tips can be attached to the cast steel shanks with 16 possible adjustments.

Batches are kept hot through the mixing cycle by the four heating jackets on the outside surface of the shell. Each mixer can handle batches 5 to 10% in excess of its rated capacity. Mixers are constructed in 3, 4, 5, and 6000-lb. batch capacities.

Bollard Asphalt Plant Division, Colonial Iron Works, 17625 St. Clair Ave., Cleveland, Ohio

For more details circle 109 on  
Enclosed Return Postal Card.

## Portable Air Vibrator

A new portable air vibrator, put on the market by Cleveland Vibrator Co.,

## McCARTHY AUGER DRILLS...

.....for  
:  
EVERY  
PURPOSE

Heavy-Duty Vertical auger drill gives you more profit per job by drilling from 3 to 24 in. diameter holes 400-800 ft. per day.

Trench-type auger drill speeds pipeline work by drilling under roads, RH beds; readily equipped with pipe-pusher.



These two McCarthy Auger Drills speed work and cut costs in a variety of contracting jobs—blast hole, foundation and deep post hole drilling, dewatering, exploration; and underground pipeline installation. Bid lower, work faster and profit more with these two great McCarthy Auger Drills. Contact your nearest representative or write direct for Bulletin M-100 (vertical) and Bulletin M-107 (trench-type).

Manufacturer of Drilling



Equipment Since 1901

THE SALEM TOOL CO.

608 S. ELLSWORTH AVE. • SALEM, OHIO, U. S. A.

... for more details circle 277 on enclosed return postal card





**Cleveland 3-in. VGV Air Vibrator**

can be attached to almost any type of frame, bin, box or table without the use of bolts.

This Cleveland 3-in. VGV air vibrator has jaws that open to 2 in., and is attached simply by tightening the vise-like clamp which is a part of the vibrator. The overall dimensions are 14 3/4 x 13 x 6 in., weight approximately 90 lb. It develops 3600 vpm at 60 psi, with air consumption of approximately 20 cfm.

Cleveland Vibrator Co., 2828 Clinton Ave., Cleveland 3, Ohio

For more details circle 110 on  
Enclosed Return Postal Card.

## Bridge Deck Forms

Permanent galvanized steel forms for bridge decks have been developed and tested by the Granco Steel Products Company. The new product is being marketed under its name of "S-I-P" (Stay-In-Place) Bridge Forms. They are available in 20-, 18-, and 16-gauge thicknesses. The pitch of the corrugations is designed to fit the spacing of the reinforcing steel used in a particular bridge deck. Thus, the concrete that goes into the ribs also serves as cover for the reinforcing bars.

The use of these forms is stated to eliminate the need for the erection and removal of wood forms. Since "S-I-P" bridge forms fit over or between the stringers, all work is done from above. In place, the forms provide a solid working deck for all trades; safety nets or scaffolds are not required.

Granco Steel Products Co., 6506 Broadway, St. Louis 15, Mo.

For more details circle 111 on  
Enclosed Return Postal Card.

## Heavy Duty Motor Oil

A new heavy duty motor oil developed by the Standard Oil Company, (Ohio) is designed to meet the exacting needs of contractors and other operators of gasoline and diesel powered heavy equipment.

This new "Sohio" HD S-1 motor oil

is stated to exceed the requirements set up for more-severe-than-usual gasoline and diesel engine applications. It is also stated to withstand the rigors of extreme operating conditions encountered by engines due to extremes of atmospheric temperatures and/or high sustained engine temperature, high load operation, intermittent or low duty operation.

The Standard Oil Company (Ohio)  
Midland Building, Cleveland, Ohio

For more details circle 112 on  
Enclosed Return Postal Card.

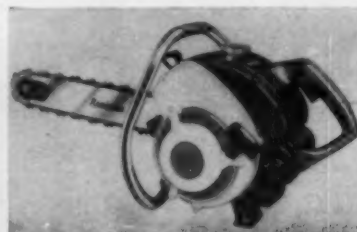
## 360-HP Diesel

A 360-hp diesel has been developed by the Detroit Diesel Engine, Division of General Motors. The new engine is a Series 110 model in which a 20 per cent gain in horsepower is attained through turbo-charging. The increase in horsepower from 300 to 360 is attained with no appreciable increase in bulk, weight or fuel consumption.

Available with base and radiator as well as a fan-to-flywheel unit, the new 6-110T has been developed for contractors' equipment and other portable and stationary industrial applications requiring a comparatively small, lightweight unit of high power output.

Detroit Diesel Engine Division, General Motors Corporation, Detroit 28, Michigan

For more details circle 113 on  
Enclosed Return Postal Card.



**Model SL-5 Direct Drive Chain Saw**

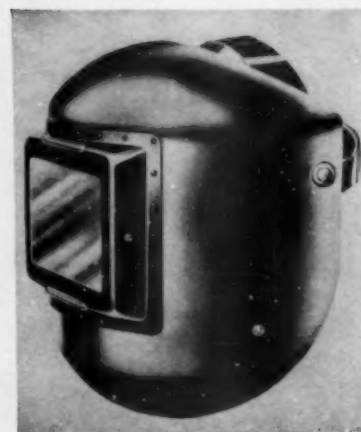
## Chain Saws

Two-color chain saws have been introduced by the Remington Arms Co. in their 1959 models. Color schemes are spruce blue and birch white on Model SL-5 and cedar red and birch white on Models GL-7R and GL-7RP. The four gasoline-powered saws are stated to incorporate design and engineering improvements which result in sustained maximum cutting power with minimum loss of torque, even when engines are operating under full loads.

Featuring three 7-hp. and one 5-hp. saws, the line is offered in a choice of either direct-drive or planetary gear-drive models with straight guide-bar lengths of 18, 24, 30, 36, and 42 in., plus a 14 in. capacity pinchless bow model.

Remington Arms Co., Bridgeport, Connecticut

For more details circle 114 on  
Enclosed Return Postal Card.



**New Airco Wide Vision Helmet**

## Welding Helmet

A new wide vision welding helmet, announced by Airco Company International offers a 120% increase in the Welder's field of vision. The lens area measures 4 1/2 in by 5 1/4 in. The two models, one with a curved bottom going under the chin and the other with the bottom extending straight down to the chest, accommodate lens shades 3 through 14, all meeting federal specifications. The helmet is constructed of full gauge vulcanized fibre and is of seamless design.

Airco Company International, Division of Air Reduction Co., Inc. 150 East 42nd Street, New York 17, N. Y.

For more details circle 115 on  
Enclosed Return Postal Card.

## Aggregate Recovery Unit

Worthington Corporation has developed an aggregate recovery machine to provide for the disposal of left-over concrete, a problem many ready mixed concrete producers are confronted with at the end of each day. The unit separates the ingredients—cement, water, sand, and stone or gravel—by means of a scrubbing action combined with gravitational forces. The cement paste is useless, but the recovered sand may be used for future concrete if new fines are added, or it can be used as-is for fill or street sanding. The stone or gravel that is recovered may be used for making concrete again and for any other normal stone use.

With the machine installed in the proper location at a ready mixed plant yard with push-button control con-



**The Worthington Machine for Recovery of Concrete Aggregates**



veniently located for truck mixer operator and timing device for automatic shut-off, the savings in tonnage of reclaimed material should pay for the initial investment in a relatively short period of time, says K. W. Horsman, Worthington's Division Manager at Plainfield.

**Worthington Corporation, Plainfield, N. J.**

For more details circle 116 on Enclosed Return Postal Card.



**Holland Model "C" Stake Puller**

### Form Stake Puller

A new Model "C" stake puller announced by Holland Manufacturing Co. exerts a 5,000-lb. pull when operated by a man weighing 150 lbs. It operates on a fulcrum principle which is adjustable to six positions, allowing workman to reach high and low stakes. The tool is 3½-ft. long and weighs 17¼ lb.

Holland Manufacturing Co., Department A-114, 920 15th Avenue, East Moline, Illinois

For more details circle 117 on Enclosed Return Postal Card.



**End View of Optional "Hi-Lite" Tubular Boom**

### New Boom and Jib

New "Hi-Lite" booms and jibs that add 20 to 60 ft. in usable height to former crane boom designs have been announced by Link-Belt Speeder. They provide combined boom and jib

lengths up to 200 feet. Maximum heights of 160, 180, and 200 feet are obtainable for unassisted lifts from the ground with the new 30, 35, and 40-ton lifting cranes.

Structural design of these new booms and jibs is based on a series of interlocked tetrahedrons, providing great rigidity and minimizing the effects of bending, compression, tension and torsion normally encountered when picking up and swinging loads. As a result, state the Link-Belt engineers, the design virtually eliminates the whipping and swaying experienced when swinging heavy loads with conventional long booms.

**Link-Belt Speeder Corporation, Cedar Rapids, Iowa**

For more details circle 118 on Enclosed Return Postal Card.



**New FWD Truck**

### Snow Removal Truck

Expansion of its snow removal and highway maintenance truck line with 40 new models in 10 basic series has been announced by FWD.

The new models range from 26,000 to 55,000 lb. gross vehicle rating and are equipped with a wide variety of gas and diesel engines, ranging from 150 to 335 hp. Twenty of them are equipped with double reduction axles and 20 with single. There are four series of single reduction axle trucks of 26,000, 32,000, 36,000 and 42,000 lb. gross vehicle ratings, four series of double reduction axle trucks of 36,000, 40,000, 46,000 and 55,000 lb. GVR, and two special-application series of single reduction axle trucks of 32,000 lb. GVR. Each series has either four or six truck models except that the two special application series have one model each.

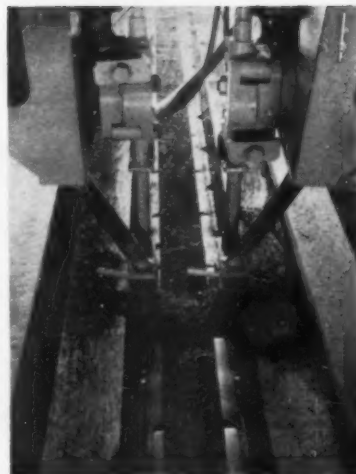
**Four Wheel Drive Auto Company, Clintonville, Wisconsin**

For more details circle 119 on Enclosed Return Postal Card.

### Crawler Track Welder

Equipped with dual automatic welding heads, a fully-automatic track link welding machine is now available from L and B Welding Equipment Inc.

Designed specifically for service shops maintaining crawler-mounted equipment, the L and B machine is claimed to provide features that reduce track rebuilding time and costs. Floor-to-floor time for building up both sides of a complete set of D8 tracks with ¼-



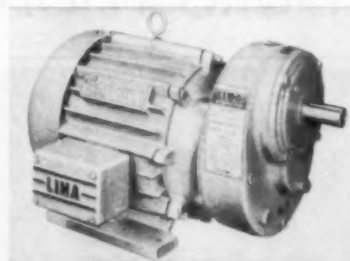
**L and B Track Welder**

in. worn depth is stated to be only 14 hours with a single operator.

Features of the new unit include a patented electric template permitting set-up in minutes rather than hours, flux-handling hoist operating over full length of track, and built-in automatic wire feed adjustment. Automatic positioner for roll and idler welding is available as an attachment.

**L and B Welding Equipment Inc., 2424 Sixth Street, Berkeley, 2, California**

For more details circle 120 on Enclosed Return Postal Card.



**"New Lima Gearmotor"**

### New Lima Gearmotors

A complete range of sizes of gearmotors has been added by the Lima Electric Motor Company to its line of "Selective Speed." Lima gearshift drives are industrial electric motors.

Called the "Lima Gearmotor," this new line consists of single, double, and triple reduction units, integrally motor-mounted, with "duty-rated" lifetime gearing. Motor capacities are rated from 1 to 125 hp, with output reduction speeds from 780 to 7½ rpm. They are adapted for horizontal foot-mounted applications.

**The Lima Electric Motor Co., Inc., Dept. 253, Lima, Ohio**

For more details circle 121 on Enclosed Return Postal Card.

(Continued on page 91)



American Bridge helps you  
build more road for the money!



These Structures were furnished to Prince Georges County, Maryland—John H. Marburger, Jr., Administrator of Public Works—by Lane-Penncarva, Inc., Bealeton, Virginia.

## Twin Beds for Winkledoodle

... or a quick, low-cost way to remove a roadblock

**Winkledoodle** is a quiet little creek which runs through a real estate development in the Maryland suburbs of Washington.

**But sometimes** even an innocent-looking stream like Winkledoodle becomes a headache when it blocks progress by dead-ending a street which ought not to be dead-ended. Solving such a problem is less difficult than you might think, as you can see from the experience of the Department of Public Works of Prince Georges County, Maryland.

**Serving as giant twin-covered beds** for Winkledoodle, long pipe-arch drainage structures shown here were made of USS AmBridge Sectional Plate. They each have a 12'6" span, a 7'11" rise, and are 112' long. Each was erected in the bed of the temporarily diverted stream in just *five working days* by a five-man crew, plus crane.

**Job Superintendent says:**  
"They went together easier  
than any in my experience."

**The dimensional accuracy** of prefabricated USS AmBridge Sectional Plate Pipe, Pipe-Arches and Arches assures precision fit in the field. In fact, Arthur Richards, Bridge Superintendent, enthusiastically says that the Winkledoodle drainage structures went together easier than any in his experience. He was also impressed with the uniform curvature of the interchangeable plates.

### No forms needed... no breakage

**USS AmBridge Sectional Plate** Pipe, Pipe-Arches and Arches eliminate the need for forms. And, being made of steel, there is no breakage. They are permanent. And they can be extended whenever the road is widened. Fabricated to meet all federal and state specifications, they are available in a complete range of standard sizes to satisfy the design

requirements for area of waterway openings.

For a free copy of our 28-page AmBridge Sectional Plate Catalog, write direct to our Pittsburgh Office. For information on smaller drainage structures made from USS Galvanized Corrugated Culvert Sheets, please send your inquiry to United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

*USS and AmBridge are registered trademarks*

**American Bridge**  
**Division of**  **United States Steel**

General Offices: 525 William Penn Place, Pittsburgh, Pa.

Contracting Offices in: Ambridge • Atlanta • Baltimore • Birmingham • Boston • Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit • Elmira • Gary • Houston • Los Angeles • Memphis • Minneapolis • New York • Orange, Texas • Philadelphia • Pittsburgh • Portland, Ore. • Roanoke • St. Louis • San Francisco • Trenton • United States Steel Export Company, New York

... for more details circle 235 on enclosed return postal card





26 Mack six-wheeler trucks with 5½-yard mixer bodies, plus four Mack tractor-trailer units to haul aggregate, handle the big part of the hauling requirements of Acme Ready Mix Con-

crete Co., of Rockford, Illinois. Mack quality construction pays dividends in operating economy and low maintenance costs, enabling Acme to handle both large and small jobs profitably.

**From front bumper to rear axle...**

## **QUALITY-BUILT for PROFITABLE HAULING**

Ask the men who really know—the men who operate Macks—about the advantages they get from Mack quality construction. They'll tell you about the unexcelled economy ... minimum down time ... the extra years of dependable service—that add up to truly profitable operation.

Mack quality begins with Mack-built major components—front and rear axles, engines, frames, transmissions and brakes—which are made to the highest standards

in the industry ... with Mack features like the exclusive Balanced Bogie with Power Divider for positive traction under severe weather and terrain conditions ... and extends to Mack cabs, which offer the utmost in driver visibility and comfort, easy access to all working parts, and minimum up-keep requirements.

You'll find that Mack quality construction shows up in every phase of operation—and, where it really counts, in net profit figures.

Check with your Mack branch or distributor today to find out how Macks' profit-making capabilities can best be put to work for you. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

**MACK**  
*first name for*  
**TRUCKS**

... for more details circle 269 on enclosed return postal card



## New Products

(Continued from page 87)



New Tilt Cab Tandem Model

### 1959 Ford Trucks

Ford's heavy and extra heavy trucks for 1959 offer nearly 150 conventional, tandem and tilt-cab models. Heading the line-up of extra heavies are seven new tilt-cab tandems available on special order in gross vehicle weights from 37,000 to 51,000 lb. with GCW ratings up to 75,000 lb.

There are six V-8's, including three "Super Duty" engines with up to 534 cu. in. displacement, for the heavy and extra heavy trucks. To get the most performance and economy from these

modern short stroke engines, there are new axle ratios and a wide range of power train options to permit each truck to be tailored to operational requirements. Ford's "Super Duty" V-8 engines for the extra heavy trucks include the 226-hp, 401-cu. in.; the 260-hp, 477-cu. in.; and the 277-hp, 534-cu. in.

Power plants for the heavy trucks in the "700," "750" and "800" series include the 187-hp, 292-cu. in. heavy duty V-8; the 196-hp, 302-cu. in. V-8; and the 212-hp, 332-cu. in. V-8.

Ford Division of the Ford Motor Co., Dearborn, Michigan

For more details circle 122 on Enclosed Return Postal Card.

### Construction Saw

A new 71½-in. power saw, the Model 533, introduced by Porter-Cable Machine Company, has its blade mounted on the left of the motor for easier lining up of the cutting edge of the blade, and sighting notch and line of cut. It is adaptable to all types of cuts from long rips to compound mitres.

By using Porter-Cable abrasive blades, the 533 will cut many types of materials as iron, steel, marble, slate, non-ferrous metals, cement blocks, building brick, tiles, porcelain, pressed materials such as lucite, bakelite and other plates.



Model 533 Construction Saw

The saw is powered by a 13-amp motor coupled with a high torque worm gear drive.

Porter-Cable Company, 126 Exchange Street, Syracuse, 4, N. Y.

For more details circle 123 on Enclosed Return Postal Card.

### Vibratory Screed

The "Cmetco" telescoping vibratory screed now incorporates interchangeability of beams to give an overall screeding width range from 15 ft. 6 in. to 36 in. By using two sets of beams, the "Cmetco" screed is stated to effectively take the place of two or more fixed beams screeds.

Beams have adjustments in 6-in. increments, and a further end-truck setting can be set for 0 in. to 6 in. allowing infinite width adjustments over the

## WILLIAMS DIGGERS LEAD THE WAY!

### AROUND THE WORLD...

In the earth-boring equipment field, Williams Diggers are unexcelled for sinking holes for everything from electric line poles to architectural foundation piers!

Available in twelve models and a wide range of hole diameters (from 12 to 96 inches) and depths (to 55 feet), Williams Diggers can be truck, tractor or specially-mounted to serve any purpose and, in this respect, are virtually custom rigs for the earth-boring contractor!



MODEL LDH



MODEL BDH



MODEL MDHU



MODEL TMDH



MODEL TBDH



**HUGH B. WILLIAMS MFG. CO. JOSLYN MFG. & SUPPLY CO.**

8330 Lovett Ave. • Dallas, Texas  
Manufacturer

2101 Corinth St. • Dallas, Texas  
Distributor

WRITE FOR DESCRIPTIVE LITERATURE



**"Cmetco" Telescopic Vibratory Screed**

screeding range. Vibratory rate of 10-200 per minute with re-transmission of wave pattern is stated to eliminate dead spots and to assure deeper compaction.

Frazer International Corporation, 461 Market Street, San Francisco 5, Calif.

For more details circle 124 on Enclosed Return Postal Card.

### Vibrator Attachments

A new thin vibrator attachment, the "Sabre," which fits easily into adaptable Dart vibrator heads, is now in production. The "Sabre" blades are manufactured from strong, spring steel in both 20-in. and 22-in. lengths. They fit both the 1 1/4-in. and 1 3/4-in. Dart vibrator heads which have been specially made for adaptation, and are



**"Sabre" Attachment on Vibrator Head**

now available with removable steel or rubber nose tips. By removing the threaded tips and affixing the "Sabre" blade attachments, workmen can reach extremely confined sections and awkward concrete form angles, consolidate concrete in close-set prestressing cables, and improve concrete and steel bonding.

Dart Manufacturing & Sales Co., 1002 South Jason St., Denver 28, Colo.

For more details circle 125 on Enclosed Return Postal Card.

### Road Roughness Tester

A new road roughness indicator, Model CT-444, has been announced by Soiltest Inc. It consists of a test trailer, ramp, electronic controls and

recording unit, and a panel instrument truck. The test trailer is towed by a specially modified panel truck at a constant speed (usually 20 miles per hour). Variations in pavement profile cause the smooth, sensitive test tire to raise and lower as it travels. This vertical movement is converted into electronic impulses which are relayed to



**Model CT-444 Road Roughness Indicator**

the instrument panel, where data are recorded to provide a roughness index in terms of inches of roughness per mile. At the same time, an oscillograph recorder plots a permanent record of the pavement profile.

Soiltest, Inc., 4711 West North Avenue, Chicago 30, Illinois

For more details circle 126 on Enclosed Return Postal Card.

### Soil Compression Tester

A new, manually operated machine for unconfined compression testing of soil samples has been announced by the Tinius Olsen Testing Machine Company. Measuring 6 x 8 x 20 in. and weighing only 12 lb., the Model 545 has a capacity of 500 lb. It will handle samples up to 3 in. dia. x 8 in. high, in either field or laboratory use. It is geared so that one turn of the hand-crank results in 0.001 in. sample compression (other gear ratios available). Axial load is read directly on the load ring attached to the upper sample head, while strain is measured by dial indicator bearing on the lower head. Total travel or compression is 1 1/4 in. for any one test.

Tinius Olsen Testing Machine Company, 748 Easton Road, Willow Grove, Pennsylvania

For more details circle 127 on Enclosed Return Postal Card.



**New Reo Trucks**

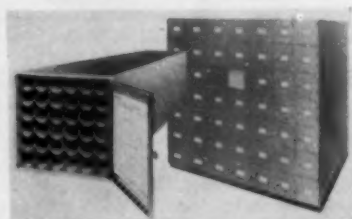
### New Reo Models

Two newly designed series, the C-200 and C-300, have been added to the Reo line. They have 15-17,000-lb. capacity rear axles.

Chassis features include Ross steering which leads the axle for quicker recovery and better roadability. Long front springs provide for a smooth, comfortable ride. There is a choice of single-reduction, double-reduction, or 2-speed axles, and of five "Gold Comet" six cylinder engines.

Reo Division, The White Motor Company, Lansing, Michigan

For more details circle 128 on Enclosed Return Postal Card.



**"Staktube" Roll File**

### Filing System

A new filing system that keeps blueprints, charts, drawings, maps, tracings, etc., clean, neat and in order has been introduced by Stacor Equipment Company. This unit consists of a heavy gauge steel casing which holds 36 2 1/4-in. file tubes. The files come complete with tubes, with a choice of four different lengths to accommodate tubes 30 in., 36 in., 42 in., and 60 in. long.

Stacor Equipment Company, 295 Emmet St., Newark 5, N. J.

For more details circle 129 on Enclosed Return Postal Card.



**Brunner & Lay Digging Chisels**

### Digging Chisel

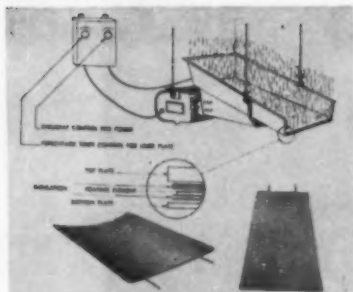
Frozen ground surfaces are claimed to give way easily to the long, perfectly forged and heat-treated blade of the new Brunner & Lay digging chisel. Three shank sizes: 1 in. x 4 1/2 in.; 1 1/2 in. x 6 in. and 1 3/4 in. x 6 in. are available. Length under collar of first tool: 17 1/4 in., and of the other two 16 1/2 in. Blade size of the first tool is 3 in. x 10 in., the others are 3 in. x 12 in.

Brunner & Lay Inc., 9300 King Street, Franklin Park, Illinois

For more details circle 130 on Enclosed Return Postal Card.

### Heated Feeder Liners

Syntron Company's heavy and extra heavy duty electromagnetic vibratory feeders are now available with electrically heated trough liner plates which



**Syntron Electromagnetic Vibratory Feeder**

facilitate the efficient feeding of high moisture content bulk materials. Liner plates will most effectively handle various grades and types of sand, gravel, stone, ore, mill scale, clay, and other hard-to-feed bulk materials having moisture contents of from 15 to 25%.

Syntron Company, 384 Lexington Avenue, Homer City, Pa.

For more details circle 131 on Enclosed Return Postal Card.

### Truck Loading Device

The new "LoadEvator" for loading bulk materials such as rubbish, refuse, cinder collections, and salvage pick up, has been announced by Cook Bros. Equipment Company.



**The "LoadEvator"**

The "LoadEvator" is easily adapted to any height or length of truck. It has a capacity of 3 cu. yd. or 1500 lb. One of its features is the ability to unload at any point in the truck body. This is especially important in getting larger legal payloads and providing better weight distribution on the truck chassis.

Cook Bros. Equipment Co., 3334 San Fernando Road, Los Angeles 65, California.

For more details circle 132 on Enclosed Return Postal Card.



**Le Roi 125RG2 Rotary Air Compressor**

### Rotary Air Compressor

A 2250-lb., 1600-rpm, 125-cfm, rotary portable air compressor has been added to the Le Roi line. The new 125-RG2 is a sliding vane type two-stage compressor with an in-line cylinder arrangement. It is rated at 125 cfm of free air compressed to 100 psi.

The compressor is powered by direct drive with a LeRoi engine of the wet sleeve, overhead valve type. A 100% capacity modulating control matches air supply to air demand within a pres-

sure range of 10 psi. "One-valve" air pressure adjustment is provided.

Sales Promotion Department, LeRoi Division, Westinghouse Air Brake Company, Milwaukee 1, Wisconsin

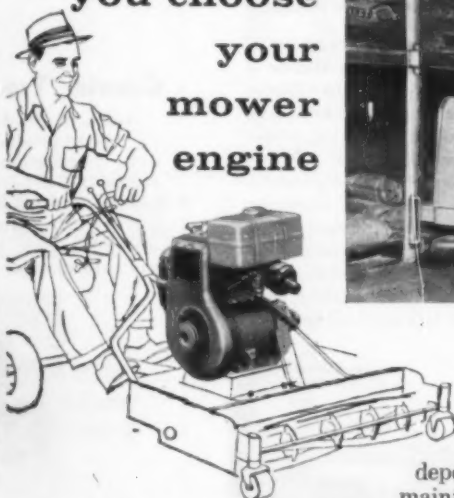
For more details circle 133 on Enclosed Return Postal Card.

### Dragline Buckets

A new group of heavy duty mining-type models has been added to the Williams line of dragline buckets. Built in 3, 4, and 5-cu. yd. sizes, all buckets

## The PLANT MAINTENANCE FIELD

can help  
you choose  
your  
mower  
engine



- What's needed — 8-hour performance, 16-hour or around-the-clock dependability? In the plant maintenance field, Wisconsin

Engines work unfailingly, hour after hour, on many types of equipment.

The fact that you are reading this page, proves that you, too, are interested in this brand of dependability from all of your equipment . . . including mowers.

Choose Wisconsin-powered mowers and the operator-hours you pay for become workhours. Heavy-duty features, many of them found on no other mower-sized engine, insure season-after-season dependability.

Write for bulletin S-223 describing all Wisconsin Engines. Electric starting available on all models. 2,000 service stations . . . several near you.

## WISCONSIN ENGINE POWER

*first choice of professionals*



**WISCONSIN MOTOR CORPORATION**

World's Largest Builders of Heavy-Duty Air-Cooled Engines  
MILWAUKEE 46, WISCONSIN

AB-6199

. . . for more details circle 288 on enclosed return postal card



## Versatile Reversible!



*The  
NEW*

# FRINK

**TRIP-BLADE SNO-PLOW**  
for all-purpose snow removal

Here's the plow designed to cope with almost every snow removal problem. The new Frink Reversible Sno-Plow with Trip Blade plows left or right for in-city maneuverability... bulldozes straight ahead for clearing intersections, bridges, lanes, parking lots, airport ramps and wide sidewalks. Power hydraulic mechanism, controlled by cab lever, reverses plow while raised or on ground, even while plowing. (Models with manual reverse by single lock pin also available.) Curved, panelled moldboard with deflector makes the Reversible lighter and safer to use at all speeds.



Dual-purpose springs with special linkage to moldboard create "free-flowing" action that follows road contour, produces smooth tripping over obstructions and quick, cushioned rebound without chatter. Cutting edge and plow shoes are replaceable; scuff shoes bolted outside moldboard protect against curbs, side obstructions.

Other dependable Frink Sno-Plows (V-Type, One-Way and Roll-Over) are interchangeable on trucks with attachments for the Reversible.

For Snow Plow Know-How  
It Pays to Think of

# FRINK SNO-PLOWS

Clayton, 1000 Islands, N. Y.

Frink Sno-Plows of Canada, Ltd., Toronto, Ontario

... for more details circle 253 on enclosed return postal card



New Williams 5-cu. yd. Dragline  
Bucket

have arch and lip built from heat-treated T-1 steel for superior strength and wearing qualities. Chains are of heat-treated forged alloy steel.

The 3-cu. yd. model weighs 6,700 lb. The 5 yd. weighs 11,000 lb. Overall widths range from 6 ft. 1 in. to 6 ft. 9 in. Lengths from 20 ft. 4 in. for the 3-yd. model to 28 ft. 8 in. for the 5 yd.

Williams Bucket Division, Wellman Engineering Company, 7000 Central Avenue, Cleveland, Ohio.

For more details circle 134 on  
Enclosed Return Postal Card.

## Crawler Tractor

A new model diesel crawler tractor, the International TD-15, now in production by the Construction Equipment Division. International Harvester Company, has a six-cylinder engine that develops 105 hp. It has all weather, push-button, gasoline-conversion starting. Features of the engine include positive valve rotators, pressure-lubricated rocker arm shaft, aluminum alloy pistons, fully counter-balanced crankshaft and twin plunger IH injections system.



International TD-15 Diesel Crawler

In addition to greatly-improved power, the International TD-15 is stated to offer important advances in handling ease, stability and maintenance intervals. The tractor has a new six-speed, single stick, full reverse transmission, designed for practical application of all six speed ranges. A shuttle bar control permits instant reverse of forward motion without shifting.

International Harvester Company, 180 North Michigan Avenue, Chicago 1, Illinois

For more details circle 135 on  
Enclosed Return Postal Card.

## Auxiliary Transmissions

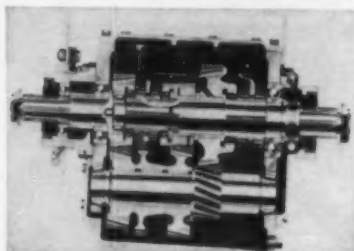
Expansion of its line of 3-speed auxiliary transmissions to include a total of 16 units has been announced by Fuller Manufacturing Company. The new units have been designed for use in the construction, transport, logging, mining and crane carrier industries.

The expanded line includes splitting ratios, both under-drive and overdrive, with which engines can operate at maximum horsepower through a full range of vehicle speeds. Deep reductions, in combination with splitting ratios, offer maximum flexibility both on and off-highway.



# New Products

Reader Service Numbers on Enclosed Postcard  
More Products beginning page 80



**Fuller 3-Speed 65 Series Auxiliary Transmission**

tion is required for extreme grades and soft footing, and where splitting efficiency is required for traffic conditions.

**Fuller Manufacturing Company,**  
Kalamazoo, Michigan

For more details circle 136 on  
Enclosed Return Postal Card.



**Whitman Model SEW Vibrator**

## Lightweight Vibrator

A new one-man lightweight vibrator, announced by Whitman Manufacturing Company, is electrically powered and weighs 16½ lb. It can be slung over the shoulder in a harness, eliminating long flexible shafts, and the need for moving heavy engines around the job. The new Model SEW produces 10,000 vpm and has a 1 5/16-in. head.

**Whitman Manufacturing Company,**  
13026 Pierce St., Pacoima, Calif.

For more details circle 137 on  
Enclosed Return Postal Card.

## Direct-Reading Level Rods

Two level rods—one reading elevations directly and the other giving cuts and fills are available from Lenker Manufacturing Company. The direct readings are obtained by using an endless tape, graduated to read downward instead of upward on the elevation rod, and to read both ways from O.O. on the grade rod. The rod is in two sections totalling 10 ft. when fully extended, the tape being mounted around end rollers on the upper half. A 4-ft. boot can be used to raise the length to 14 ft. In taking levels, the rodman sets and clamps the tape so that the instrument reads bench mark elevation. Since the tape is only 10 ft. long, this reading is in units and fractions only and requires that the tens and higher numerals be prefixed to it. The tape clamp fastens it, not to the upper section of the rod on which it is mounted, but to the back or lower section, thereby giving correct readings of elevations as the rod is extended or shortened by sliding the two parts. The grade rod operates on similar principles and is readily adapted to the setting of slope stakes.

Separate tapes for levels and grades are inter-changeable on a single rod. Tapes are on white-face with black and red markings, and are available either in feet and decimals or feet and inches. These rods are known by the trade name, "L-E-Vation."  
**Lenker Manufacturing Co., 599 Chestnut Street, Sunbury, Pa.**

For more details circle 138 on  
Enclosed Return Postal Card.



## Engine Starter

The Houston Co., Wallingford, Connecticut, has announced that they are now exclusive manufacturing and sales agents for the Reichhelm gasifier primer. The primer is a self-heat-generating unit which vaporizes liquid fuel and blends the vaporized fuel with air to form a combustible mixture which is



**Reichhelm Gasifier Primer**

readily ignited in the engine cylinders. It is claimed that difficulties encountered in starting all types of internal combustion engines in cold temperatures are eliminated with the use of the gasified primer in all temperatures down to minus 65 deg.

**The Houston Co., P.O. Box 417, Wallingford, Connecticut**

For more details circle 139 on  
Enclosed Return Postal Card.



**Parsons "420" Trenchliner**

## Cross-Country Trencher

The 420 "Trenchliner" designed especially for cross-country and other big trenching jobs is now in production by Parsons Co. Its digging wheel has three speeds—115, 215 and 300 ft. per minute. Digging speeds range from 15 in. to 25 ft. per minute. Double-action hydraulic rams actuate the wheel for roading and grading. Available bucket widths are 36 in., 42 in., and 48 in. Sidecutters to increase trench widths to 40, 46 and 52 in. are optional. Maximum depth of trench is 7 ft. 6 in.

**Parsons Company (Division of Koehring Co.), Newton, Iowa**

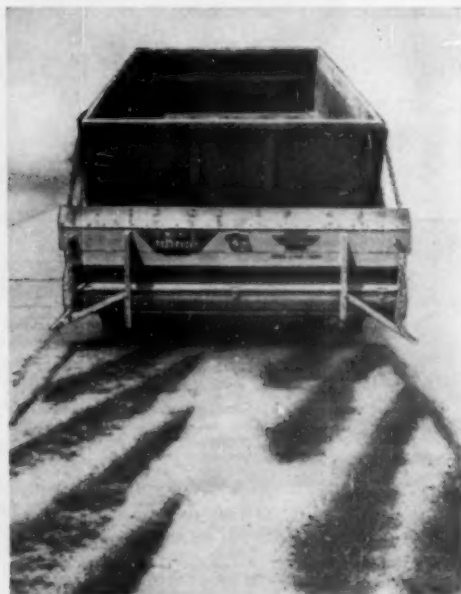
For more details circle 140 on  
Enclosed Return Postal Card.



**Link-Belt Speeder's LS-108**  
(Continued on page 97)

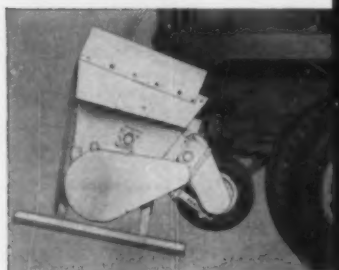


A grooved roller spreads blanket pattern for seal coating.

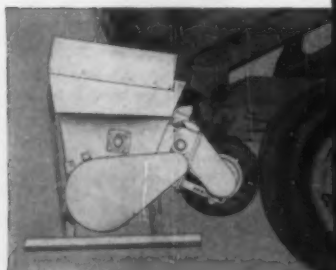


A spiral roller spreads echelon pattern for ice control.

**Fast, Simple  
Operation!**



In road-traveling position the Model J is up and out of the way.



In less than five minutes the driver can have the Model J locked into position. As dump body is raised, the traction tire comes in contact with the inside truck dual, putting the drive into motion. (Permits tire chains to be placed on the outside dual without interference.) Operates at speeds up to 30 mph.

## Whether For Ice Control or Seal Coating HI-WAY Model J Tailgate Spreader Is Geared To Surface of The Road!

- Attaches to any standard dump truck
- Strictly one-man operation
- Spreads all granular materials . . . wet or dry
- Full 9 foot width

When ice conditions are bad, more sand, salt or cinders should be applied to the surface of the road. Since the Model J Spreader drive is positively synchronized to the speed of your rear traction tires, you merely adjust the feedgate to lay more material and regulate truck speed to road conditions.

The echelon pattern for ice control mechanically duplicates hand shoveling by laying materials in ridges that more quickly melt the ice. Other units spread a thin blanket that is easily blown off the road by traffic or wind. HI-WAY Model J, pioneer of the echelon spreading pattern, thus enables you to do a more effective job with less material.

For seal coating, depth of coverage is similarly controlled by a feedgate and

there is no wasteful free flow when truck is stopped. The dump body operates independently since the unit is hinged directly to the truck frame, *not* to the dump body. An optional block-off attachment adjusts width of spread up to 9 feet. Forward and reverse transmissions also available.



**Our Business Is  
S-P-R-E-A-D-I-N-G**  
• New Management • New Distribution

**HIGHWAY EQUIPMENT COMPANY**

622 D. Ave. N. W.

Cedar Rapids, Iowa

. . . for more details circle 258 on enclosed return postal card



ALA. G.C. Phillips Tractor, Birmingham, Prichard  
 ALASKA The Carrington Co., Seattle, Wash.  
 ARIZONA Equipment Sales Co., Phoenix  
 ARK. Clark Equipment Co., Little Rock  
 Tri-State Eqt. Co., Memphis, (Tenn.)  
 CALIF. Brown-Bevis Ind. Eqt. Co., Los Angeles  
 Standard Mach. Co., San Francisco  
 COLO. H. W. Moore Eqt. Co., Denver, Gr. Jct.  
 CONN. Eastern Eqt. Sales Inc., West Haven  
 DEL. Ransome Corp., Bear  
 FLA. Square Deal Mach. & Sup. Co., Inc., Orlando  
 Square Deal Mach. of Miami, Miami  
 Square Deal Mach., Inc., Jacksonville  
 G. C. Phillips Tractor, Birmingham (Ala.)  
 GA. Stith Eqt. Co., Atlanta  
 IDAHO Feenaughty Mach. Co., Boise  
 Rocky Mt. Machinery, Salt Lake City (Utah)  
 ILL. Illinois Cont. Mach. Inc., Elmhurst, Peoria,  
 Rock Island  
 Koste Machinery Co., Robertson (Mo.)  
 IND. Reid-Holcomb Co., Indianapolis, Evansville  
 Illinois Cont. Mach., Elmhurst (Ill.)  
 Rish Eqt. Co., Cincinnati (Ohio)  
 IOWA Wendler-Kraus Eqt. Co., Inc., Cedar Rapids  
 Vivian Eqt. Co., Ames  
 Mo. Valley Mach. Co., Omaha (Neb.)  
 KANS. G. W. Van Keppel Co., Kansas City (Mo.)  
 KY. Williams Tractor Co., Louisville, Paducah  
 Rish Eqt. Co., Cincinnati and Portsmouth (Ohio)  
 LA. General Eqt. Co., Baton Rouge  
 ME. Eastern Tractor & Eqt. Co., Portland  
 MD. Rish Eqt. Co., Clarksburg (West Va.)  
 Ransome Corp., Bear (Del.) and Philadelphia (Pa.)  
 MASS. Perkins Mach. Co., Needham Heights,  
 Springfield  
 MICH. Earle Eqt. Co., Detroit, Grand Rapids  
 Drott Tractor Co., Inc., Iron River  
 MINN. Wm. H. Ziegler Co., Minneapolis, Hibbing,  
 Crookston, Duluth  
 MISS. Equipment Inc., Jackson  
 Tri-State Eqt. Co., Memphis (Tenn.)  
 MO. Koste Mach. Co., Inc., Robertson  
 G. W. Van Keppel Co., Kansas City  
 Tri-State Eqt. Co., Memphis (Tenn.)  
 MONT. Pioneer Eqt. & Sup. Co., Butte  
 NEBR. Mo. Valley Mach. Co., Omaha  
 Nebr. Mach. Co., No. Platte, Scottsbluff  
 Lincoln Eqt. Co., Lincoln  
 NEV. Sierra Mach. Co., Inc., Reno  
 N. H. Mingolla Mach. Co., Concord  
 N. J. Dale & Rankin, Inc., Hanover  
 Ransome Corp., Bear (Del.) and Philadelphia (Pa.)  
 N. MEX. N. C. Ribble Co., Albuquerque  
 Equipment Supply Co., El Paso (Tex.)  
 N. Y. J. C. Georg Const. Eqt. Co., Syracuse,  
 Schenectady, Lisbon  
 P-D Service, Inc., Pavilion, Buffalo  
 H. O. Penn Mach. Co., Inc., New York,  
 Foughkeepie, Westbury (L. I.)  
 NO. CAR. H. B. Owsley & Son, Inc., Charlotte  
 NO. DAK. Northwestern Eqt., Inc., Fargo, Minot  
 OHIO Rish Equipment Co., Cincinnati, Cleveland,  
 Columbus, Dayton, Portsmouth, Toledo,  
 Youngstown, Parkersburg, (W. Va.)  
 OKLA. Leland Eqt. Co., Tulsa, Oklahoma City  
 ORE. Feenaughty Mach. Co., Portland  
 PENN. Watson Eqt. Co., Inc., Pittsburgh  
 Ransome Corp., Philadelphia  
 R. I. Perkins Mach. Co., Needham Heights,  
 Springfield (Mass.)  
 SO. CAR. Ray Long Eqt. Inc., Columbia  
 SO. DAK. Sioux Road, Inc., Sioux Falls, Rapid City  
 TENN. Tri-State Eqt. Co., Memphis  
 TEX. J. W. Bartholow Mach. Co., Dallas  
 Conley-Lott Mach. Co., Lubbock  
 Equipment Supply Co., Inc., El Paso  
 UTAH Rocky Mt. Mach. Co., Salt Lake City  
 VT. Mingolla Mach. Co., Barre  
 VA. Rish Eqt. Co., Richmond, Roanoke,  
 Bluefield (W. Va.)  
 Ransome Corp., Bear (Del.) and Philadelphia (Pa.)  
 WASH. Feenaughty Mach. Co., Seattle, Spokane  
 W. VA. Rish Eqt. Co., Bluefield, Charleston,  
 Clarksburg, Parkersburg  
 WISC. Drott Tractor Co., Inc., Milwaukee,  
 Madison, Rice Lake  
 WYO. Wortham Mach. Co., Cheyenne  
 HAWAII Edward R. Bacon Co. Ltd., Honolulu

... for more details circle 258 on enclosed return postal card  
**ROADS AND STREETS, December, 1958**

## New Products

(Continued from page 95)

### 40-Ton Crawler Crane

A new, 40-ton crawler machine that lifts and walks with more than its own weight is now offered by Link-Belt Speeder Corporation. For fast, job-to-job transport, it can be stripped down to an 8-ft. overall width and approximately 32,000 lb., within two hours.

With a crawler base that is 15 ft. long and over 14 ft. wide (with 42-in. shoes), the new LS-108 has a spread-eagle stance that gives it exceptional stability. It offers as standard equipment, "Speed-O-Matic" power hydraulic controls, two-speed travel in either direction with hydraulic power steering, independent rapid boomhoist with boom lowering clutch and retractable high gantry that also removes the counterweight under power. Options include reversing clutches for either or both main drums, third drum, hydraulic controlled swing brake, engines with torque converters, and elevated cab.

Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

For more details circle 141 on  
 Enclosed Return Postal Card.

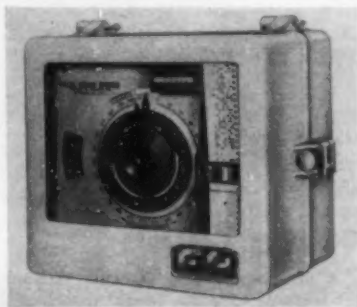
### Rear Tractor Tires

A new rear tractor tire of advanced, improved design has been announced by Goodyear Tire and Rubber Company.

Soil penetration has been increased by deepening lugs at tire shoulders. Lugs have been slanted towards one another from tire center to improve traction in loose soil. Shoulders have been built up for greater resistance to bruising, and lugs have been swept back at shoulder to reduce radial cracking and buckling. Super Rayon cord fabric is used in the new design after treatment with Goodyear's exclusive 3-T process, which adds strength and stretch resistance.

Goodyear Tire and Rubber Co., Akron, Ohio

For more details circle 142 on  
 Enclosed Return Postal Card.



Digital Recorder for Traffic Counting

### Traffic Counter

A new digital recorder, announced by Fisher & Porter Co. readily measures traffic flow during any preselected time interval. Operated by electrical impulses from a conventional road treadle, it produces a permanent record on punched paper tape. The tape record is easily interpreted visually or is suitable for use with automatic data processing machines. The unit is offered with standard time intervals of 5, 15, or 60 minutes. Other intervals are available and interval changes are easily accomplished by the user.

Fisher & Porter Co., 911 Jacksonville Road, Hatboro, Pa.

For more details circle 143 on  
 Enclosed Return Postal Card.



Simplex 25H28

Simplex 25H22

### Hydraulic Jacks

Two new "high lift" hydraulic jacks have been added to the Simplex line. Both have a capacity of 25 tons and are equipped with both high and low speed pumps which may be operated singly or in unison. One model, the 25H28, has a closed height of 28 in. with a 22-in. lift reaching a total height of 50 in. It weighs 125 lb. Another model, the 25H22 has a closed height of 22 in. with 16 in. of lift for a total height of 30 in. Its weight is 105 lbs.

Templeton, Kenly & Co., Broadview, Illinois

For more details circle 144 on  
 Enclosed Return Postal Card.

### Concrete Batch Plants

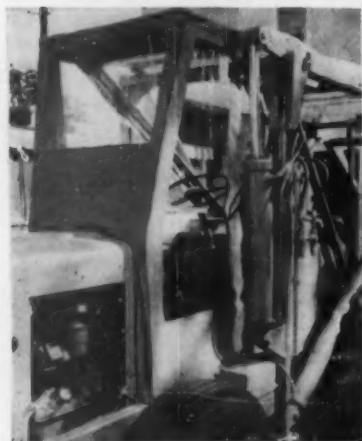
The "Two Seventy-Five," a concrete batch plant that disassembles into three mobile units, has been added to the line of C. S. Johnson portable plants. Three alternate bin sizes give a wide range of capacities while handling four aggregate sizes. The three bins offered have 33, 50 and 67 cu. yd. capacities. A pivoted distributor is manually controlled from ground level or may be equipped for remote control. Maxi-



mum erection lift is only  $7\frac{1}{4}$  tons. A  $3\frac{1}{2}$ -cu. yd concentric batcher has standard manual aggregate control with semiautomatic cement control. Full automatic controls are available. The plant is equipped with Johnson beam-type scales.

C. S. Johnson Co., Champaign, Illinois

For more details circle 145 on  
Enclosed Return Postal Card.



"Economobile"—All Weather Cab

### All-Weather Cab

A high visibility, all-weather cab has been announced for the American "Economobile," all-purpose materials handling vehicle. The cab is made from "Cartex" No. 8 canvas, dry-treated to be moisture repellent, using large sections of clear, flexible, vinyl plastic in the sides, back and roof. The windshield, made of  $\frac{1}{8}$ -in. "Flexiglas,"  $3 \times 4\frac{1}{2}$  ft., is held in place by steel channels.

American Road Equipment Co., 4201 North 26th St., Omaha, Nebraska

For more details circle 146 on  
Enclosed Return Postal Card.

### Grouser Track Shoe

A new grouser track shoe section is now standard on Caterpillar D9 tractors. The grousers on these new shoes are  $\frac{1}{4}$  in. higher and  $\frac{1}{16}$  in. thicker than on the present D9 grouser shoes. The added grouser thickness and height increase the beam strength of the shoes approximately 25%, thus providing additional assurance against shoe breakage and extending shoe life.

Caterpillar Tractor Co., Peoria, Ill.

For more details circle 147 on  
Enclosed Return Postal Card.

### Paving Breaker

A new 24-lb paving breaker is now being offered by Worthington Corporation. Designed with a rubber buffer type retainer, the new WB-24 has a front end with a smooth symmetrical contour for easy operator handling on side wall work. The tool cannot overheat because it is equipped with ex-



WB-24 Paving Breaker

haust air passes in the front end. All high finished parts, are Blu-coated for trouble-free service.

Worthington Corporation, Holyoke, Mass.

For more details circle 148 on  
Enclosed Return Postal Card.



New "Michigan" Model 110 Tractor  
Wagon

### 13-Ton Tractor Wagon

A 13-ton "Michigan" Model 110 tractor wagon has been introduced. It is made of high strength steel, and is designed to haul rock and similar material that can't be self-loaded by scraper. The low loading height ( $7\frac{1}{2}$  ft.) permits feeding by virtually any power shovel, conveyor, or medium-duty tractor shovel.

The tractor wagon has an S.A.E. heaped capacity of 12 cu. yd. and 8.3 cu. yd. struck. When dumping, double-acting hydraulic cylinders tip load out the rear. The wheelbase shortens as rear wheels and axle pivot forward. Power of the tractor can be used to assist in dumping extremely heavy loads, the operator simply locking air-actuated rear wheel brakes and power-shifts into reverse. The load spills out faster as the 168-hp machine throws its weight and power behind the dumping action.

Construction Machinery Division,  
Clark Equipment Company, Benton Harbor, Michigan

For more details circle 149 on  
Enclosed Return Postal Card.

### Grouting Cement

A new, fast-setting grouting cement for securely fastening machinery, handrails, seats, fixtures or any type of

equipment to concrete by means of anchor bolts has been introduced by the Garland Co. Known as "Anchor-Tite," the material is described as a scientifically-blended, free-flowing, rapid-setting welding agent for concrete and masonry. Recommended as a quick-patch for small, shallow depressions and cracks in concrete floors.

The Garland Co., Cleveland 5, Ohio

For more details circle 150 on  
Enclosed Return Postal Card.



New Snow Plow Attachment

### Snow Plow Attachment

A new snow plow attachment for the Model M-30 power truck announced by the Prime-Mover Company is designed to roll the snow to either side and has lateral grooves in the mold-board to prevent packing. The cutting edge is removable and can be reversed for double wear. Rubber-mounted outside tubular push arms reduce shock and wear. The 60-in. blade is easily removed when the M-30 is being used as an 11 $\frac{1}{2}$ -ton bulk materials carrier.

The Prime-Mover Company, Muscatine, Iowa

For more details circle 151 on  
Enclosed Return Postal Card.



Generating and Control System

### Power Supply System

A new 25-kw, 125-volt dc power supply system, incorporating generator with an exciter and semi-transistorized generator regulator has been developed by the Electrical Division of Safety Industries, Inc. It is claimed to offer exceptional response to load fluctuations or rapid changes in generator speed, and is thus particularly well suited for diesel engine drive wherever rapid acceleration or deceleration is involved.

Electrical Division, Safety Industries, Inc., P.O. Box 904, New Haven 4, Conn.

For more details circle 152 on  
Enclosed Return Postal Card.



## Manufacturers' Literature

**CRUSHERS AND QUARRY PLANTS:** A complete range of fixed and mobile plants and separate crusher units is covered in pictures and short descriptions in a 6-page flier just issued by Goodwin, Barsby & Co., Ltd., Leicester, England. Machines listed independently of complete plants include primary stone and gravel crushers, intermediate and general purpose crushers, granulators, crushing rolls, impact breakers, and light-duty crushers. Goodwin Barsby & Co. are a part of the well known Aveling-Barford Group of manufacturers.

For more details circle 153 on  
Enclosed Return Postal Card.

**THREE PIPE-LAYING JOBS**—in Mojave desert, California, through bayou waters in Louisiana, U.S.A. and in the big-timber wilderness of British Columbia—are described in an 8-page folder just issued by Caterpillar Tractor Co., Peoria, Illinois, U.S.A. Ask for Form DE 836.

For more details circle 154 on  
Enclosed Return Postal Card.

**REO DIVISION, THE WHITE MOTOR CO.,** Lansing 26, Michigan, has announced a 28-page folder illustrating and describing Reo's line of trucks and engines. It covers in detail all of the trucks, tractors and bus chassis in the line, and likewise describes all the Reo engines including both V-8 on six-cylinder models.

For more details circle 155 on  
Enclosed Return Postal Card.

**TWO-WAY RADIO:** A new two-way radio equipment booklet has been published by General Electric Communications Products Department, Electronics Park, Syracuse, N. Y. It is designed to give those planning communications systems the latest available information on standard models of two-way radio and optional types of equipment which can be provided for individual system flexibility.

For more details circle 156 on  
Enclosed Return Postal Card.

**WHEEL TRACTORS:** A new 16-page catalog CR-1374-H, available from Consumer Relations Department, International Harvester Co., 180 North Michigan Ave., Chicago, Ill., describes the IH complete line of the new wheel tractors in six power sizes ranging from 12 to 72.5 hp. Starting with the International "Cub Lo-Boy" and including

the International 140, International 240 Utility, International 340 Utility, International 460 Utility, and the International 560 tractor, the catalog gives special features and specifications for each tractor.

For more details circle 157 on  
Enclosed Return Postal Card.

**"SALT FOR ICE AND SNOW REMOVAL":** A new handbook on salt as a de-icing agent is available from the Salt Institute, 33 North La Salle St., Rm. 3101, Chicago 2, Illinois. Salt's de-icing properties are explained and supported by technical tables. One section of the booklet is devoted to a discussion of corrosion.

For more details circle 158 on  
Enclosed Return Postal Card.

**DRILLING TOOLS:** Brunner & Lay, Inc., 9300 King St., Franklin Park, Illinois, has published a new revised 24-page catalog No. 358, containing complete specifications of its carbide drill bits, drill rods and air tool accessories. Includes suggestions on how to make drill bits do more work and last longer, and instructions for sharpening and hardening moil points, digging chisels, etc.

For more details circle 159 on  
Enclosed Return Postal Card.

(Continued on page 101)

**ANOTHER  
BMCO  
FIRST!**

**13  
WHEEL  
SELF-PROPELLED ROLLER**

**MORE COMPACTION  
FEWER PASSES  
50% LARGER**



**NOW . . . YOU CAN CUT YOUR  
COMPACTION TIME IN HALF!**

This new exclusive BMCO 13 wheel roller makes it possible for you to do the same amount of work in half the time!

With complete oscillation on all wheels and power steering this 13 wheel BMCO compactor is easy to handle. With the largest power unit in its class and extra displacement . . . this is the compactor for you in '58.

For more information write, wire, or phone!

**BROWNING MANUFACTURING CO.**

111 HUMBLE AVENUE  
SAN ANTONIO 6, TEXAS

P. O. BOX 2707

## Views and Comments

... By H. G. Nevitt

### Filler Content and Its Significance

WE WERE tempted to title this discussion "The Unknown Ingredient" because of the discrepancy between the knowledge generally encountered today and what we think should be known concerning the effect of using a specific filler in varying quantity. Yet in a general way there is much known about the consequences of using much or little filler; it is only when a more accurate prediction of filler type and quantity effects is attempted that difficulties are encountered. Since this may present a stumbling block to the greater precision clearly needed in asphalt mat design, some discussion of the situation may be profitable.

Historically the attention given to filler has waxed and waned. When study was made of the factors which appeared to affect pavement strength, it became quickly apparent that mixes approaching maximum density gave higher values; and, since filler can be very effective in increasing the density, that high filler contents should lead to high strengths as measured by laboratory stability values.

● Many pavements of this type were built. The results were almost disastrous. With the high stability values went brittleness, a tendency to crack badly but heal ineffectively, accompanied by a rapid hardening rate. Filler contents went down again, and with this trend a lack of attention to this ingredient in the mix. The permissible quantity of fines in the mix is regulated, and many permanent plants have more or less worked out the apparently best filler type was amount by a trial-and-error procedure; but otherwise attention to the problem of filler has (with a few exceptions) been negligible, or at least limited.

That more understanding of filler effects is required is brought out by some analysis. For example, the Corps of Engineers specification

TM 3-254 permits from 3 to 12% of minus 200 mesh, although suggesting that the higher value be preferably not approached. Of course this specification has over-all mix requirements that may in the final result regulate the filler type or amount, but these are certainly indirect controls and far from conducive to an understanding of the action of the filler per se.

It therefore seems justifiable to point out just what such a spread in allowable filler percentage may mean. As an example we may consider a typical mix described (in Table III) by Hudson in his article on gradation limits in this magazine a few months ago. The mix, containing 6% filler, at maximum stability has 6% asphalt. Following the trend of asphalt content versus filler used by Hudson, at 3% filler the asphalt content would be 6.20%; at 10% filler (the maximum used by Hudson, and apparently the practical limit) it was 4.38%. The three corresponding filler-to-asphalt ratios (that is, the ratio of the two volumes) with the specific gravities given would be 0.19, 0.40, and 0.92. The relative nominal particle surface areas (that is, relative areas assuming the graded particles are spheres) are respectively 296, 371, and 470. That is, the swing in filler-asphalt ratio from 3% to 10% filler corresponds to a change of 181%, and the swing in surface area corresponds to 47%. These are obviously variations of considerable magnitude which cannot but greatly affect the cohesive film action.

There are two theories concerning the action of filler. One is that these finger particles have an adhesive film of asphalt just like the large particles, and function exactly as they do. The other is that the filler forms a mastic with the asphalt, this mastic then constituting the cohesive film on the larger particles. In the former case the change in surface area due to filler

content (and also filler surface characteristics) modification is the critical factor. In the latter theory the effect of this filler on the mastic—that is, the per cent filler in the mastic, and its modification of the mastic consistency and similar—require attention.

● *Filler-Film Relationships.* The first step in considering filler effects would seem to be to form some opinion as to which of these theories is most likely to be correct, or the probable contribution of each effect.

To do this some understanding of the geometry involved is essential. The tendency of the filler fraction to form part of the asphalt film on the larger particles would seem to be determined, or at least influenced, by the relation between the film thickness and the filler particle diameter.

The distribution of the asphalt film over the aggregate particles of varying size has not been given the attention we believe is justified. The usual assumption has been that the asphalt is uniformly spread over the exposed surface regardless of particle size. Experiment (and likewise theory) contradicts this, at least in the larger particle size range. The subject is discussed in our paper presented before the VII Pan American Highway Congress, which is scheduled to appear (in Spanish) in the Proceedings of that meeting. The data given in this paper can be used to form some idea of the situation.

For a normally graded (i.e., typical) mix such as we are using with rather round and smooth particles, the  $\frac{3}{4}$  to  $\frac{1}{2}$  in. fraction can be expected to hold about 0.5% by weight of asphalt (or 1.3% by volume). This means that the asphalt film (in thousandths of an inch) is about 1.32 in thickness. For the Nos. 10 to 20 fraction the respective figures are 2.6% and 0.57. Assuming that the relationship extends into the filler region the calculations for the Nos. 100 to 200 fraction give 14.0% and 0.21. These film thicknesses should be compared with the filler particle size range. The No. 200 screen has an opening of 2.9 thousandths of an inch, the 270 of 2.1. In considering the above relative dimensions it should be kept in mind that few fillers have any great content of material passing the 270 mesh screen size, and approved fillers with a portion finer than the 325 mesh

(Continued on page 102)

## Manufacturers' Literature

(Continued from page 99)

**TIMBER ENGINEERING CO.**, 1319 18th St. N.W., Washington 6, D. C., has published its 1959 catalog file, giving information on the latest timber connectors and framing anchors. Among items treated are "Wedge-Fit" split rings, shear plates, "Trip-L-Grip" framing anchors and two new products recently introduced to the building industry—"TECO Du-Al-Clip" framing anchors and "TECO-U-Grip" joist hangers.

For more details circle 160 on Enclosed Return Postal Card.

**RUBBER MOUNTED CRANES:** Koehring Division, 3026 Concordia Ave., Milwaukee 16, Wisconsin, has released a new 4-page bulletin covering its complete range of rubber-mounted cranes from 15 to 45 ton lift capacity. Bulletin shows 11 photographs of the equipment, with important commentary on each size crane.

For more details circle 161 on Enclosed Return Postal Card.

**WHEEL TRACTORS:** A broadside, Form No. 33058, available from Caterpillar Tractor Company, Advertising Division, Peoria, Illinois, explains features of new Caterpillar DW 21 (Series D) and DW 20 (Series F) wheel tractors. Brochure deals primarily with two most outstanding new features of this machine—the "Super Turbo" engine and "Torsionflex" seat. Detailed explanation of new pressure ratio control system of air induction is also included.

For more details circle 162 on Enclosed Return Postal Card.

**DAYBROOK HYDRAULIC DIVISION,** YOUNG SPRING AND WIRE CORPORATION, Bowling Green, Ohio, has released three specifications sheets on its new complete line of telescopic hoists. Covered are Series 3B and 3C hoists for truck dump bodies and Series T-3C, T-4C and T-4D for trailer dump bodies. Complete data including specifications, application and hoist ratings are featured.

For more details circle 163 on Enclosed Return Postal Card.

**HEWITT-ROBINS, INC.**, 666 Glenbrook Road, Stamford, Connecticut, has published a 20-page booklet on infra-red heating equipment for thawing frozen bulk material in railroad cars. The booklet presents a technical description of infra-red heat rays and explains how they can be harnessed to speed up the unloading of materials in freezing weather.

For more details circle 164 on Enclosed Return Postal Card.

(Continued on page 103)

**ON ASPHALT**—These pictures show the Barco Vibra-Tamp working on asphalt surfacing at an Arizona motel. It moves along, self-propelled, at a uniform rate with minimum effort required of operator.



## The Versatile **BARCO**

Here's why users like the Barco VIBRA-TAMP:

**MANY USES!** The handiest small machine you ever used for tamping, compacting, and smoothing sand, gravel, soil, cinders, chips, cement and soil mixtures, and asphalt surfacing. Use it in restricted areas, close to walls, around posts, in trenches, for patch jobs and clean-up jobs, leveling of areas around footings, smoothing sub-base fill for slab floors, inside foundations and countless other places!

**QUALITY CONSTRUCTION**—Definitely superior value. Tough, rugged, dependable, and simple, yet precision-built for long life and freedom from maintenance. Comfortable operating handle.

**ECONOMICAL**—Low initial cost; low operating cost. Easy to move anywhere. No special tools required. Saves your bigger, costlier equipment. **ORDER YOUR VIBRA-TAMP NOW.** Catalog No. 630 on request.

Sold and Serviced by the Nation's Leading Distributors



## **BARCO MANUFACTURING CO.**

515-N Hough Street

Barrington, Illinois

**BARCO RAMMER** for High Degree Soil Compaction  
**BARCO-VIBRA TAMP** for Granular Fill and Bituminous Surfacing

... for more details circle 239 on enclosed return postal card

built to  
handle  
**MORE  
JOBS!**



# VIBRA TAMP

**MAXIMUM  
COMPACTION**

for

1. Granular Base Materials
2. Bituminous Surfacing





(Continued from page 100)

(with an opening of 1.7) are extremely rare.

Can conclusions be drawn from the above figures, and will they be helpful? We believe an affirmative answer to both questions is warranted.

● The films on the coarse aggregate appear hardly large enough to include the minus 200 mesh fraction, but might absorb a considerable proportion of it, with the action of these films possibly modified accordingly. However, while 5% of the aggregate exceeds  $\frac{1}{2}$  in., only 0.14% of the surface area and 0.58% of the total asphalt present are represented by material of this size. The films on the aggregate below the No. 10 screen appear too thin to contain particles even near the 270 mesh size, and are influenced as a mastic only by the more minute fines. There should rarely be enough of such fine material to appreciably affect the film action. Furthermore, the aggregate larger than the No. 20 screen, totalling 62½% by weight, nevertheless only accounts for 8.3% of the surface area present, and to 19.0% of the total binder content.

The films on the finer aggregate—that below the No. 20 screen, which accounts for the majority of the surface area present and the binder required—are obviously too thin to be mixed with the filler present. Rather it would appear that the filler particles not submerged in the relatively small volume of asphalt on the coarse aggregate act like the remainder of the aggregate in that they carry an asphalt film and are bonded by it to other particles. It would therefore appear that the mastic theory is not tenable for the usual filler, though it might well represent the action when very fine fillers are used.

In fact, it would appear logical—and we have held this view for many years, before the data presented here was available—that the 325 mesh screen would furnish a logical dividing point for the minus 200 fraction. The material between the 200 and 325 screens would be called fines, but be considered acting in the same way as the larger aggregate—that is, requiring asphalt for film coverage, and similar. The material passing the 325 screen would be called filler, and be regarded as a modifying agent of the asphalt forming the films. In the great majority of cases the “filler” content by this definition would be

sufficiently small to not require consideration (except perhaps for its bulking effect on the asphalt) while the “fines” content would require consideration in the surface area to be covered and similar.

Some corollary comment on these conclusions may be desirable. First, those who cling to the belief that the asphalt is present in a uniform film must recognize that the resultant thickness of this uniform film would lead to about the same conclusions as given above, viz., that the majority of the usual minus 200 content present will not be submerged in (and form part of), the film, hence must be considered to act independently.

Another corollary is that the minus 200 fraction must be given due regard as a component requiring consideration from the standpoint of surface coverage. That is, sufficient asphalt must be present to provide a film of suitable thickness for these fine particles as well as the larger aggregate fractions, yet there must be sufficient void space for the asphalt quantity required. One logical approach would be to separately determine the asphalt requirements of the aggregate less this fine fraction and of the fine fraction itself, using methods considered appropriate; then make certain that the combination of the two (that is, the final gradation chosen) at the asphalt content found to be the optimum met the requirements indicated for the two separately. If it did not (as we have found to be often the case in mixes used today) the indication is that the asphalt film thickness was being sacrificed to permit the use of a gradation which did not provide room for the desirable amount of binder. However, in our view a simpler procedure is to analyze the film conditions by the method referred to previously, and reject any gradation which did not result in acceptable film values.

● It should appear from the preceding discussion that careful control of the minus 200 fraction is extremely important, likewise the determination of the optimum. Too little filler unnecessarily sacrifices stability. Too much filler will require more binder than can be tolerated, resulting in excessively thin films with the permissible asphalt content. This is particularly undesirable since the normal film thickness on the fine particles is none too great, so that these are the more susceptible areas for film harden-

ing, stripping and other undesirable phenomena. They also give mats lacking in both flexibility and fatigue resistance, as well as great susceptibility to hardening.

The filler-bitumen ratio has been suggested as a desirable mix design control. Evidently a design in which certain rather broad limits of this ratio of the filler volume to that of the asphalt are exceeded will be unsatisfactory; however, this ratio is determined by two quite independent quantities (the asphalt demand for the minus 200 mesh present, and that for the plus 200 aggregate) and therefore general limits which are satisfactory for one mix may be incorrect for another. However, as a control on a particular project where the asphalt demand for the plus 200 or bulk of the aggregate will not vary too much, it could provide an excellent control. That is, for any fines content in a particular sample there is under these conditions a corresponding filler-bitumen ratio which should be met, and in this way field control of the fines content and corresponding asphalt demand could be maintained, provided there is likewise control of the stability of the combined mix to assure there is no overfilling of the voids. However, we again feel that a film analysis of the sample, combined with the structural tests, offers the best approach to this phase of mix control.

● We have had occasion to comment that usual fillers have little very fine material, and hence mastic action need only be expected when this is not true. This raises the question as to whether such fine content would improve the mix.

Speaking strictly of normal asphaltic mixes, not mastics or roofing coatings, our feeling is to strongly question the merit of an appreciable content of very fine particles. The asphalt film provided should meet rather strict demands, particularly in consistency as has been discussed in these pages previously. What benefits does the modification of these characteristics by the formation of a mastic offer? We can see no assured ones, while certainly there might be disadvantages, such as the attainment of too hard a film, not to mention the obvious difficulties in controlling the properties of this mastic. Undoubtedly some resistance properties will increase, as would likewise be the case from using a harder binder, but will the over-all result be better? Pending proof to the con-



trary, appreciable very fine material in the mix—either as the result of its presence in the filler used or due to permitting clay (either in mass, or as a layer on the coarse aggregate) to be incorporated in the mix—seems something to be carefully avoided.

● Summarizing, it can be said that the minus 200 fraction of the usual asphaltic mix is an important one, having great effect on both the strength and durability of the mat. It is important to closely control the amount of this fraction present, since mixes are very sensitive to the amount used. The asphalt content must be sufficient to provide the proper film thickness on these particles, and this usually means that for reasons of void space the quantity of this fine fraction present must be restricted—though it is likewise highly undesirable to have too little in the mix.

Evidently the smaller sized fractions, and particularly the minus 200, must be given much attention in both the design and control of the mix. When this is done the proper use of fines offers many advantages to the engineer, permitting correction of aggregates which otherwise might be unsatisfactory. In general, knowledge of the use and control of fines is an excellent aid to obtain the basic objective of maximum results from a minimum expenditure.

### ARBA's Annual Convention Program Announced

The American Road Builder Association's 57th Annual Convention is scheduled for Dallas, Texas, January 19-22.

In addition to the many technical committee sessions, general sessions will be addressed by highway leaders from government and industry, covering top priority problems in the highway program. Delegates who are interested can look forward to a choice of two official post-convention tours of Mexico. Information available on these tours at ARBA Headquarters, World Center Building, Washington, D. C.

One feature will be the 5th Annual Materials and Service Exhibit. The convention will be centered at the Memorial Auditorium and the Adolphus Hotel.

Many of the sessions will be of particular interest to contractors, the convention luncheon is scheduled for Wednesday, January 21, sponsored by the Contractor's Division of ARBA, with Rudolph Kraemer, division president, presiding.

## Manufacturers' Literature

(Continued from page 101)

**SOLWAY PROCESS DIVISION, Allied Chemical Corporation, 61 Broadway, New York City,** announces the appointments of Harry C. Todd to the newly created position of Manager of Distributor Sales, and of William J. Cannon to Advertising Manager, which position was previously held by Mr. Todd.

For more details circle 165 on Enclosed Return Postal Card.

**STENBERG MANUFACTURING CORPORATION, Hoosick Falls, N. Y.** has issued a folder on its portable, fully submersible electric pumps for contracting, mining and general industrial use. One of the features described is the pumps' ability to handle very high proportions of solids. Details of capacities, weight, horsepower etc., are given.

For more details circle 166 on Enclosed Return Postal Card.

**OLIVER WHEEL TRACTORS:** Six new models are described at length in the current, No. 3, issue of "Oliver World". Reference is made also to Oliver's recent demonstrations of its complete line, a tour of its Cleveland plant, the work and extent of the International Road Education Foundation, and to various brochures and specification sheets. Oliver World is published bi-monthly by Oliver International S.A., 400 West Madison Street, Chicago 6, Illinois.

For more details circle 167 on Enclosed Return Postal Card.

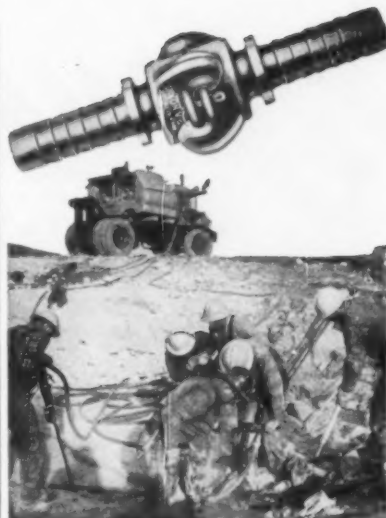
"THE DEVELOPMENT OF POZZOLITH made available a material of proven ability to greatly increase the resistance of concrete to water without adversely affecting any of its other physical properties". From a 6-page brochure, "The Design and Specification of Watertight Concrete for Average Conditions" published by The Master Builders Company, Division of American-Marietta Company, 7016 Euclid Avenue, Cleveland 3, Ohio.

For more details circle 168 on Enclosed Return Postal Card.

**FORNEY'S INCORPORATED** offer a complete catalog of laboratory, plant and job-site testing machines, with collateral equipment for testing concrete pipe and drain tile, cylinder, blocks, cubes, beams and lintels. Mailed without charge when requested on company letterhead. Forney's Incorporated, Tester Division, P.O. Box 310, New Castle, Pa.

For more details circle 169 on Enclosed Return Postal Card.

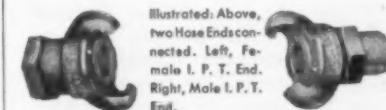
(Continued on page 111)



## "AIR KING" Quick-Acting Universal HOSE COUPLING

**FOR COMPRESSORS, ALL TYPES  
OF AIR TOOLS, WATER, OIL  
AND SPRAY SERVICE**

This versatile coupling is built along plain, rugged lines to assure long, trouble-free service under severest working conditions.



Illustrated: Above, two hose ends connected. Left, Female I. P. T. End. Right, Male I. P. T. End.

The "Air King" will reduce operating costs wherever quick connections are required. Locking heads are identical for all sizes of hose or threaded ends, permitting the coupling of any two sizes of hose within the "Air King" hose end size range, or coupling to any pipe up to 1" by use of the male or female threaded ends. Heads are locked by pressing together and applying a quarter-turn. A patented Safety Locking Device eliminates all risk of the coupling coming apart. Available in bronze or rustproofed malleable iron, in sizes up to 1".

The "Air King" is made to established standards for couplings of this type and is interchangeable with other similar makes.

Also available in 4-Lug style, Hose and Female I.P.T. Ends only, in 1 1/4", 1 1/2" and 2" sizes.

**DIXON**  
Valve & Coupling Co.  
EXPORT DEPARTMENT  
1010 SCHAFF BLDG.  
PHILADELPHIA 2, PA., U.S.A.

... for more details circle 250 on enclosed return postal card

# Bituminous

## ROADS AND STREETS

For Oklahoma "I" Job—

### Three Aggregates Do Triple Duty

*Contractor on Oklahoma freeway asphalt paving project combined imported crushed stone, bank gravel and local sand to meet requirements successfully for stabilized aggregate base, binder mix and surface course. Stabilization material processed in a central pugmill—an innovation in Oklahoma state highway department.*

Three big stockpiles loomed alongside the hot-mix plant of Amis Construction Company outside Oklahoma City this past summer. The three raw aggregates were lending a versatile hand, in a circumstance which might ordinarily have called for four or five different materials.

One material was 1½-in. maximum crushed limestone, imported by rail. Another was a medium gravel, unprocessed, also rail delivered. The third pile was local river sand of rather fine gradation. The gradations of typical samples of the three materials are shown in Table 1.

The three materials when proportioned onto a single delivery belt passed through a pugmill and became the stabilized aggregate base material.

The same three raw materials were dropped onto another belt, going thence through the hot-plant to become either the 1½-in. maximum aggregate for the asphaltic binder (Type A) mix, or the ½-in. maximum material for the surface course (Type C) mix. A scalping screen, roll crusher and recircula-

tion created the smaller gradation. A straight run through the hot bins and directly into the mixer produced the coarser mix.

Observers agreed that this was a very good set-up for all concerned. The state got a good quality job of pavement the contractor realized economy by utilizing only three aggregate piles and a minimum for the entire job.

The project in question is part of Interstate Route 35 (Raymond Gary Expressway) East Bypass around Oklahoma City. The Amis firm's \$850,000 paving contract covered 2.72 miles of dual roadway, complete with extensive interchange ramps and service roads—approximately 169,400 sq. yd. of asphalt paving in all. The interchange marks the junction of "I" routes 35 and 40 and hence was designed for very heavy regional as well as metropolitan traffic use.

Aggregates of high quality are none too plentiful in the Oklahoma City area, where an extensive program of freeway work is centering. Local river sand is on the fine side. Gravel must be imported by rail, and importation of crushed stone

● Panoramic view of the hot-mix plant (across both pages). Material being spilled on the ground is bin overflow, several days' accumulation.



often is required to secure good gradation and stability in mix design.

Rail imported materials were unloaded efficiently at a pit unloader equipped with belt feeder. This facility could unload a car of stone in 12 minutes, gravel in 10 minutes and concrete sand in as little as 7 minutes. Materials for this job were hauled into large stockpiles in Euclid bottom-dumps, which were pushed up on the pile by a Caterpillar D8.

The local river sand was trailer delivered and dozed up into stockpile.

● The plant set-up which took the material from there is outlined as follows:

For the stabilized aggregate base blend, three piles fed respectively into three tunnel-installed Syntron vibrating pit feeders and onto a 40-ft. tunnel belt. Adjustable feeder gates dropped stone, gravel and sand in desired proportions on this

● Continuous mixer (Pioneer) sending out surface course mix for the Amis project. Note re-circulating belt at left, for reduction of aggregates for this 1/2-in.-minimum mixture.



belt. A second belt took the material to a Cedarapids pugmill, where twin-shaft paddles thorough-

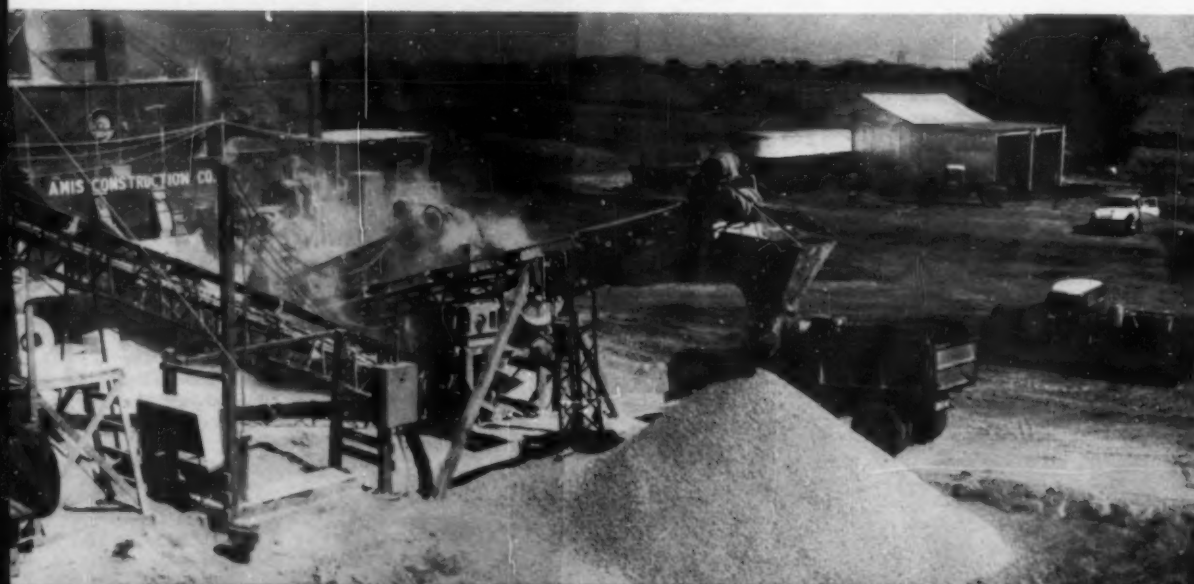
ly intermixed the three materials. During the mixing, water was added in controlled amounts to pro-

TABLE 1

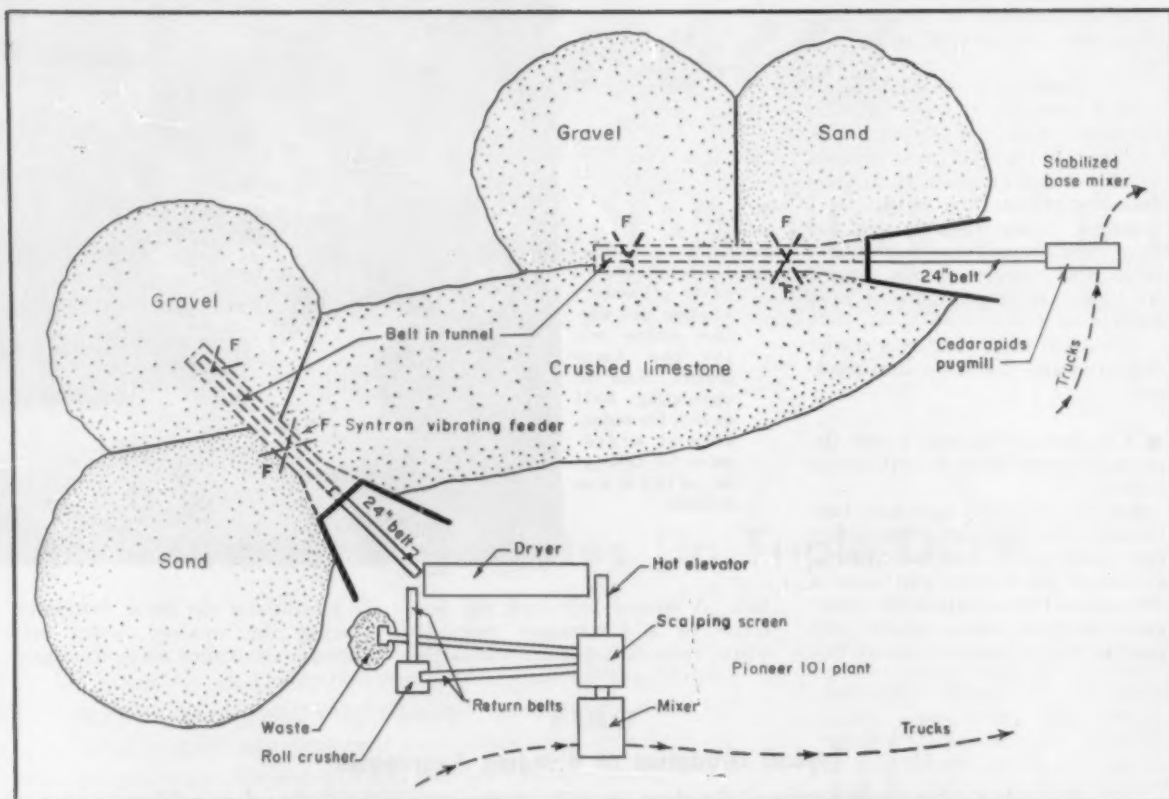
### Typical Gradation of Blending Aggregates

Stockpile sample representative of the three materials which were combined (first three columns); with proportions shown for each aggregate used by the contractor, showing that the blend falls within the specified limits for Type A stabilized aggregate base course.

Sieve Size	Rock	Sand	Gravel	22% Rock	15% Sand	63% Gravel	Total Blend	Type A S.A.B.C.
1 1/2"	100.0	100.0	100.0	...	...	...	100.0	100
1"	93.7	100.0	98.6	20.6	15.0	62.1	97.7	75-100
(3/4)"	61.9	100.0	95.4	13.6	15.0	60.0	88.6	65-100
(3/8)"	9.2	100.0	76.7	2.1	15.0	48.3	65.4	40- 75
4	0.8	100.0	60.7	1.7	15.0	38.2	54.9	30- 60
10	0.5	100.0	45.8	1.1	15.0	28.8	44.9	20- 45
40	0.0	96.3	21.9	0.0	14.4	13.8	28.2	8- 30
200	0.0	29.5	8.1	0.0	4.4	1.7	6.1	4- 15







● General plan of the layout used by Amis Construction Co. to produce for three purposes from the same three materials.

duce a stabilization mixture having the desired moisture content. Trucks took the material out over a scale station.

For asphaltic concrete production the same stone pile and two independent gravel and sand piles (see sketch) converged over another trio of Syntron vibrating feeders, which supplied material onto a tunnel belt. Here again the feeder gates delivered proportioned flow of the three materials, which in this case passed by belt into a Pioneer

9' x 30' dryer. The dryer was served by a Pioneer blower and four Webster 1-million-btu natural gas burners.

The hot elevator took the flow to the top of the gradation unit, where it was sized on the 2½-deck screen unit of a mobile Pioneer Model 101 continuous asphalt plant. The separated material went into three hot bins, and, in the case of the Type A (1½-in. max.) binder mix, then passed into the mixer and into waiting trucks.

When Type C mix (½-in. max.) was in production, the process was the same, except that material exceeding ½ in. was scalped off, crushed by the roll crusher and returned to the dryer. For either size mix, a second belt (as seen in the photos), dropped bin overflow for periodic disposal.

Power for all-electric operation came from a utility transformer station.

The Cedarapids Stabilized Base Mixer which processed the stabi-



● Pair of pavers on the Freeway bypass near Oklahoma City, where hot mix for both layers was produced from the same stockpiled material as the stabilized base mix.



# STANDARD

## BUILDS THE ASPHALT PLANT TO FIT YOUR NEEDS!



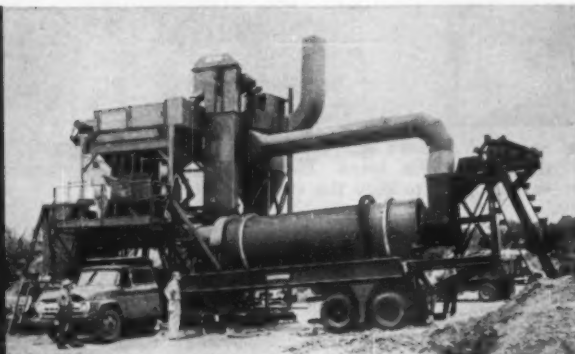
**SEMI-PORTABLE AND STATIONARY R-M Series**

MANUFACTURED IN 2000, 3000, 4000, 5000, 6000, 7000 AND 8000 POUND BATCH CAPACITIES.

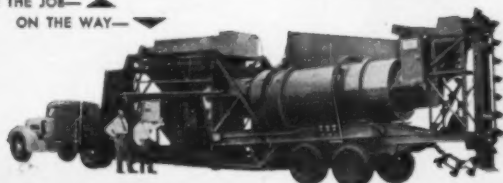
Engineered to give fast, efficient, dependable service, the Standard Model R-M Asphalt Plant is BIG—with the Super-lift Dryer, Standard-Symons horizontal vibrating screen, type "S" Hi-Speed Mixer and oversized power units. These are some of the important Standard features which eliminate the usual production bottlenecks.

**RUGGED**—with built-in stability through the use of heavy pressed steel members, generously sized transmission and bearings, and job-designed wear-resistant alloy metals.

**SIMPLE**—to operate—no gadgets—clean dust seals at all points. *Economical*—low erection, operating and maintenance cost assures more profit year in, year out!



ON THE JOB—  
ON THE WAY—



**COMPLETELY PORTABLE T-M Series**

MANUFACTURED IN 1000, 1500 AND 2000 POUND BATCH CAPACITIES.

Standard Model T-M Asphalt Plant —BIGGEST BATCH TYPE ASPHALT PLANT ON WHEELS—the proven answer to low-tonnage hot-mix jobs at remote locations.

Big! Fast! Rugged!... Operators report capacities up to 60-80 tons of hot mix per hour.

Completely self-contained on its own trailer, field proven everywhere for its ability to stand up under the most rigorous conditions. Self-erects from transport position to operating position in less than 60 minutes.

Entire plant can be set up and producing in less than eight hours.

# STANDARD

ASPHALT PLANTS

... built to do a better job!

## STANDARD STEEL CORPORATION

General Offices & Plant, 5003 Boyle Avenue, Los Angeles 58, California

Midwest Offices & Plant **LEADER IRON WORKS** Decatur 3, Illinois  
(Division of Standard Steel Corporation)

PARTS WAREHOUSES IN LOS ANGELES AND DECATUR, ILLINOIS

## THE NEW "STANDARD" SUBGRADER

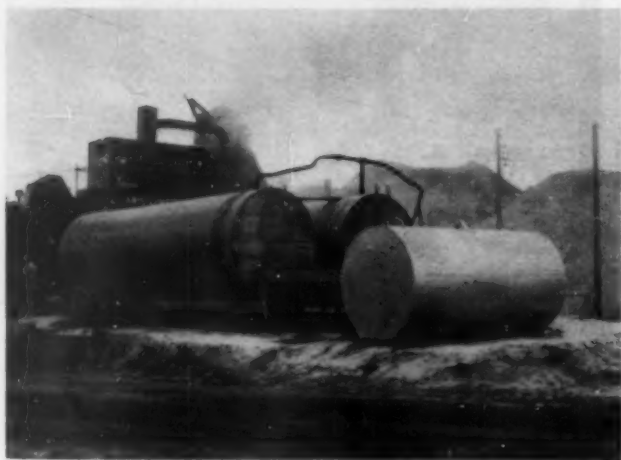
Write for information about STANDARD's new DEEP-CUT Subgrader. Takes cuts as deep as 26 inches. Ideal for airport work.

ROTARY DRYERS • KILNS • COOLERS • ASPHALT PLANTS

... for more details circle 280 on enclosed return postal card



- Sand being dozed into (Syntron) vibrating tunnel trap for the hot-mix blend. Same dozer shuttled between various piles to keep the traps well covered.

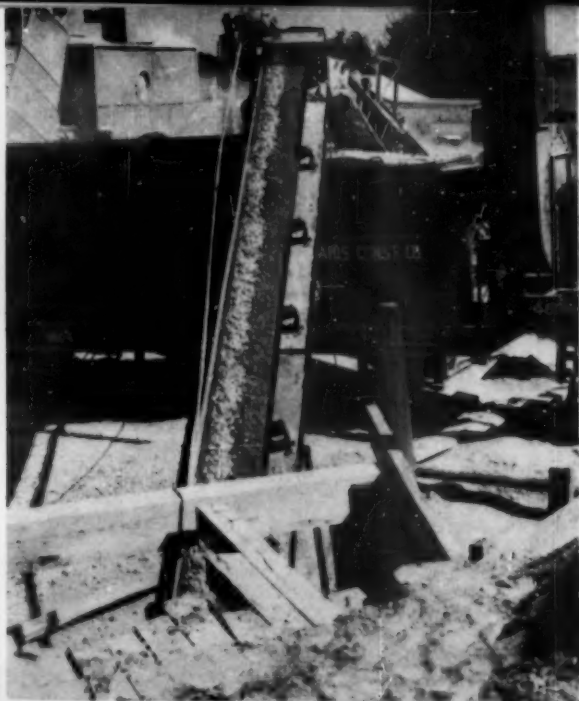


- The Amis hot-mix plant was supplied from these two trailer-chassis-mounted storage tanks, with the small tank for prime or tack-coat asphalt.

zation mixture was rated at 400 tons per hour but often produced 600 tons without difficulty. The hot-mix plant delivered 150 to 180

tons per hour.

Asphalt of 85-100 penetration was used for both mixes. Asphalt was stored in two 10,000-gal. tanks



- Note blend of proportioned material on the cold-feed belt, supplied from calibrated gates in the tunnel.

permanently mounted on trailer frames. Heating was by a hot-oil system devised by the contractor. A smaller tank to the rear (seen in photo) carried MC primer oil.

This aggregate scheme and plant set-up permitted easy completion of the job during the 1958 season, the production totaling 110,000 tons of stabilized base and 39,000 tons of the two asphaltic concrete types. No speed records were attempted since synchronizing bridge construction was a problem.

- Large daily footages were laid however when the crew had a clear

TABLE 2

### Gradation "Specs" for Stabilized Aggregate Base

Alternates given Amis Construction Company on the Interstate 35 project here reviewed.

Sieve Size (in.)	Type A 1½" max. (% Passing)	Type B 2½" max. (% Passing)	Type C 3" max. (% Passing)
3	.....	.....	100
2½	.....	100	.....
2	.....	85-100	75-100
1½	100	70-100	.....
1	75-100	55-85	50-75
¾	65-100	50-75	45-67
¾	40-75	30-65	30-55
¼	30-60	25-62	25-45
10	20-45	15-40	15-35
40	8-30	7-25	6-22
200	4-15	3-15	2-12

(Type A was selected for the project)

TABLE 3

### Design Mix for Asphaltic Concrete

Typical gradation of hot-mix resulting from blend of the three raw aggregates, with secondary or on-site crushing required for the Type A mix.

Sieve Size (in.)	Type A Binder Mix (% Passing)	Type C Surface Mix (% Passing)
1½	100	...
1	95	...
¾	70	100
¾	...	95
¼	49	65
10	40	50
40	26	30
80	12	13
200	5	5
Percent asphalt	5.3	6.2
Road Density (%)	94.5	93.6

## See Also on Amis' Oklahoma City By-Pass Job



- No, the trailer didn't collide with the building. The Amis organization set this supply trailer into the wall, so that its open rear end constituted a second room off the field shop building.



- Shoulders along a raised overpass approach section of the Oklahoma City by-pass, being built up with draglined material, delivered in bottom dumps and dozed into place.



- Sodding of freeway slopes, done manually directly off the trucks. Sodding considered best for the Oklahoma City climate and soils, as means of stemming erosion and getting turf at lowest cost.

run. Following is a description of the design requirements for each layer in the 18½-in. pavement system, together with notes on the equipment used.

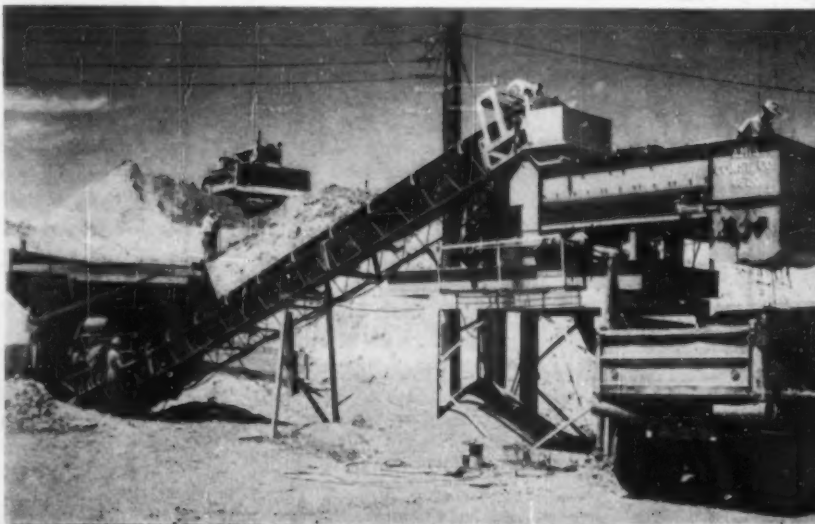
**Subbase.** A 6-in. compacted thickness of select subbase placed full width on the rolled template grade. The subbase was compacted to 95 percent density, standard AASHTO method of test. Select borrow was loaded by dragline, truck delivered, spread by dozer and motor grader, and rolled with a 13-ton rubber-tired roller and small sheepfoot plus passage of equipment. This material was required to be a 2-in. maximum suitable soil. The fraction passing the No. 10 sieve was specified to have a Plasticity Index

not to exceed 10 and Liquid Limit not over 35.

**Stabilized Base.** An 8-in. compacted thickness stabilized aggregate base course was next placed, extending full width and including shoulder where provided in the plans. The contractor was given the option of plant-mixing or road-mixing this material, except that

the processing had to be done off the roadway at an approved site. The processed material could not be tailgated or dumped in piles, but was to be spread mechanically to produce courses of not less than 3 in. or more than 6 in. compacted thickness in the pavement areas. Actually the base was placed in two 4-in. lifts. Rolling in one course up

- Stabilized aggregate mixer (Cedar-rapids) which blended three aggregates and water for the granular base mixture.





## Oklahoma Job

to 8 in. was permitted for shoulders.

Processed material was truck delivered and deposited by a Blaw-Knox base spreader, equipped with an oscillating screed and pushed by an International TD-18A tractor. This equipment spread as high as 4,400 tons of material per day, equivalent to 9,800 sq. yd. of 8-in. base, easily keeping up with the fast Cedarapids pugmill at the plant.

Rolling to 95 percent standard density for each lift was done with a Buffalo-Springfield 3-axle bump roller with a vibrating middle drum. This roller was equipped for a time also with a segmented front wheel, which reportedly worked efficiently with this stabilized aggregate. The top lift was rolled also with a pneumatic roller. The finished base had to be accurate within  $\frac{3}{4}$  in. of theoretical cross-section and within  $\frac{1}{4}$  in. under a 10-ft. straightedge.

The stabilized mix was designed as a free-draining material of high stability, P.I. limit of 6 and L.L. of 35. At least 40 percent of the No. 4 plus fraction was specified to

consist of fractured particles, which requirement was met by the blending-in of crushed limestone.

The contractor was given three standard elective gradations for the stabilized aggregate base, representative of new standard specifications soon to be issued in Oklahoma (permitting slightly less fines than heretofore). Amis chose the "A" elective, shown in Table 2.

This material was found to compact best at about 6 percent moisture, or 2 percent under optimum. After completion the base was cured for a day or two until the moisture content was not over half the optimum. Then the base was given a prime of about .2 gal. per sq. yd. of MC-1 asphalt.

**Hot Mix Topping.** The asphaltic concrete pavement was then placed routinely, consisting of a 3-in. course of Oklahoma Type A binder mix and  $1\frac{1}{2}$  in. of Type C mix. Shoulders were topped out with a double asphalt treatment and cover stone and rolled.

John Waugh was project manager for Amis Construction Company. The job is part of the Okla-

homa City metropolitan area program of the state highway department, of which G. H. Bittle is chief engineer, with J. M. Copeland as resident engineer under J. J. Stobaugh, Jr., construction engineer. With numerous design, laboratory and district office personnel participating.

## ASCE Urges Registered Engineers for Public Jobs

The American Society of Civil Engineers, at its recent annual convention, went on record as recommending the use of registered professional engineers in top public service positions involved in engineering projects. This would include the top post in the state highway departments.

The Board of Direction of the Society voted: "To record adoption of the policy that the chief executive officer of all departments in public service wherein there is major responsibility for engineering design, construction or other engineering services should be a registered professional engineer."



TRANSIT  
MODEL 3-F  
\$720.00

**NO  
REPLACEMENT  
NEEDED  
after you  
acquire a**

## WARREN-KNIGHT Instrument

The design and construction of these superb instruments is so superior and so different that it is prudent to investigate them. After all, an instrument that can promise a very minimum of repairs and maintenance—and does promise that it will probably never be replaced during your entire remaining professional career should be in YOUR equipment.

**FREE 10 DAY TRIAL**—So sure are we of your reception to this magnificent instrument that we offer it FREE for 10 days trial test on your own work sites. You will find that over 40 superior advantages will save you time, concerning this unique instrument.

Ask for Bulletin R-812 that lists Full Details.



... for more details circle 287 on enclosed return postal card

110

**SNOW REMOVAL** is  
faster, easier, more economical



WITH  
**MONARCH Power Hydraulic CONTROLS**  
that **LIFT** and **LOWER** the snow plow...

...Automatically!



You operate the snow plow right from the truck or jeep cab with Monarch Controls. Instant, automatic lifting or lowering that saves time, does the job more efficiently. See your dealer or write for illustrated folder.

**MONARCH**

**MONARCH ROAD MACHINERY COMPANY**

1331 MICHIGAN ST., N.E., • GRAND RAPIDS 3, MICHIGAN

... for more details circle 270 on enclosed return postal card

**ROADS AND STREETS, December, 1958**



## Manufacturers' Literature

(Continued from page 103)

**LUBRICATION NEWSLETTER No. 5**, a technical paper covering the effect of lubricants on the "wear-in" of new machinery, has been released by The Alpha-Molykote Corporation, 65 Harvard Avenue, Stamford, Conn. A thorough engineering study of the surface geometry of mating surfaces is included together with a discussion of Coulomb's theory on friction as it applies to the ever-present asperities on machined surfaces.

The results of a continuing series of tests on the lubrication of mating surfaces reveal data heretofore unpublished. Test equipment especially developed for this use is thoroughly described. Actual test records are pictured and analyzed.

For more details circle 170 on  
Enclosed Return Postal Card.

**LOW AIR PRESSURE**, one of the biggest sources of early tire wear, is the target of a special campaign by truck tire service men of The Firestone Tire and Rubber Company, Akron 17, Ohio. Key to the program is a sticker which lists the exact air pressure requirements for all tires on an operator's truck. The stickers are being posted in the cabs of trucks where they can be seen easily and can serve as a permanent reminder to the drivers to check the air pressure in their tires.

For more details circle 171 on  
Enclosed Return Postal Card.

**CONTRACTORS' PUMP**: A specification sheet, Bulletin 6545-S7, available from Worthington Corporation, Advertising and Marketing Promotion Department, Harrison, New Jersey, contains complete dimensions and pump and engine data on the new "Blue Brute" 30M engine-driven self-priming centrifugal pump, a new size recently added to the 1958 line of contractor pumps.

For more details circle 172 on  
Enclosed Return Postal Card.

**A NEW FILM ON CORROSION** tells what causes anodes and cathodes to form on steel surfaces, how they produce electrolytic corrosion, what can be done about it. Discusses inhibitors, alloys, hot-dip galvanizing, cathodic protection, metalizing, organic coatings and "Dimet-cote" inorganic zinc coating. Case histories show how corrosion problems are solved in various industries. In 16 mm color with sound. Running time 19 minutes. Amercoat Corporation, 4809 Firestone Blvd., South Gate, California.

For more details circle 173 on  
Enclosed Return Postal Card.

**ELECTRICAL PRODUCTS**: A new 16-page brochure (IDE-MC) entitled "Electrical Products for Maintenance and Construction" is now available from the International Division of Minnesota Mining and Manufacturing Company (3M Company), 900 Bush Ave., St. Paul 6, Minnesota. It tells the story of the complete line of "Scotch" brand products including insulating tapes, Resins and splicing kits, electrical insulating putty, and wire connectors.

For more details circle 174 on  
Enclosed Return Postal Card.

**HARRIS CALORIFIC CO.**, 5501 Cass Avenue, Cleveland 2, Ohio, has published a new catalog covering all phases of the gas welding and cutting business. Included are arc welding torches and tips, cutting torches and tips, regulators and welding and cutting accessories. Included also are specification sheets to meet all types of gas welding and cutting requirements.

For more details circle 175 on  
Enclosed Return Postal Card.

**FORMATION OF KOEHRING FINANCE CORPORATION**, a wholly-owned subsidiary of Koehring Company, has been announced by Julien R. Steelman.

"Sales growth, both in equipment lines long associated with our company and in others recently acquired, has resulted in a broader participation in equipment financing by Koehring", Mr. Steelman stated in announcing the formation of the new company.

**GOODALL RUBBER COMPANY** has opened a new uptown office at 1270 Avenue of America's, Rockefeller Center, New York 20, N.Y. J. E. MacDonald, Jr. is Vice President, Director of National Accounts. Edward LeB. Marshall is Northeast Regional Manager. The district sales office and warehouse will continue at the Goodall Building, 5-7 White St., New York 13, N.Y.

## Contractors' Withholding Percentage To Be Cut

In Tennessee where 10 percent of the monthly estimate on highway contract work is withheld under state law, the next legislature will take up reducing the withholding amount to 5 percent.

The present law requires that 10 percent of the pay due the contractor be held for as long as 60 days after completion of the contract requirements. This statute dating from 1917 is regarded as unrealistic and placing an unwarranted burden on the contractors of the state.

There is a further requirement that the 10 percent withheld not be given to contractors until advertisements are run for four weeks in a local newspaper, calling for any claims against the contractor. Then potential complainants are given thirty more days in which to file claims. If a claim is filed, the money is held another thirty days to give the complainant time to file suit.

As explained in a newspaper report, the withholding of this percentage of the contractor's pay is actually double protection for the state. Protection already lies in a law which calls for contractors to put up bond for "full and faithful performance" of every part and stipulation of the contract. Some of the contractors with large jobs in the Tennessee road program could easily have \$200,000 tied up by the present withholding law, this newspaper report explains. The situation frequently forces contractors to borrow from banks and to pay interest, of course, on those loans according to a spokesman of a Tennessee Road Builders Association.

**ROADSIDE DEVELOPMENT (1958)**. Report of committee on this subject, comprising papers presented at the 37th Annual Meeting of the Board (January, 1958).

## SWENSON SPREADERS FOR ICE CONTROL

**SPREADS SALT 200 LBS. PER MILE  
OR IN ANY DESIRED AMOUNT**

**Lays a Narrow Strip or Full Traffic Lane**

Handles all granular materials — salt, cinders, sand, calcium chloride, rock chips. Spreads at speeds up to 30 M.P.H. Clutch-controlled flow: steady or intermittent for hills and intersections.

**Write for complete information**

**SWENSON SPREADER & MFG. CO.**  
LINDENWOOD, ILLINOIS



For more details circle 174 on enclosed return postal card

here . . . without a doubt . . . is the most useful buying catalog in your office

. . . and here are some reasons why you should be USING IT DAILY!

- Catalogs are PREFILED — Saving you time and space required to file individual manufacturers' catalogs.
- Saves you the time and inconvenience of writing to manufacturers for catalogs.
- Gives you all the facts needed BEFORE you make a buying decision.
- Manufacturers' names and trade names indexed alphabetically for quick reference to individual catalogs.
- All the buying information is 'boiled down' — designed for your convenience.

After checking the advantages listed above, you can see why this ONE CATALOG offers you so MANY advantages . . . saving you both time and money, not only in the mechanical and physical aspects of a cataloging operation . . . BUT MOST IMPORTANT OF ALL . . . it is available WHEN you NEED it . . . BEFORE you make your buying decisions! The manufacturers represented in this catalog are literally 'meeting' with you in your office — offering you all the information you could possibly need concerning their products. Why not meet them at least half way — and USE THEIR PREFILED INFORMATION!



Here are the manufacturers represented in Gillette's Heavy Construction Prefiled Catalog:

American Steel & Wire  
Armco Drainage & Metal Products, Inc.  
Austin-Western

Baldwin-Lima-Hamilton Corporation  
Barber-Greene Company  
Browning Manufacturing Company

Carey Manufacturing Company,  
The Philip  
Chrysler Corporation,  
Industrial Engine Div.  
Clark Industries  
Cleaver-Brooks Company  
Cleveland Form Grader Co., The  
Cleveland Trancher Co., The  
Colorado Fuel & Iron Corp., The  
Continental Motors Corporation  
Cummer & Son Co., The F. D.

Detroit Diesel Engine Div.

Erie Strayer Company

Flexible Road Joint Co., The

Gar-Bro Manufacturing Co.  
General Motors Corp.  
Gledhill Road Machinery Company,  
The

Harnischfeger Corporation  
Heltzel Steel Form & Iron Co., The  
Huber-Warco Company, The

Jackson Vibrators, Inc.  
Joy Manufacturing Company

Miller-Tilt-Top Trailer Company  
Minneapolis-Moline Company

Naugatuck Chemical Div.

Onan & Sons, Inc., D. W.  
Owen Bucket Company, The

Phoenix Products Company  
Pioneer Engineering  
Pressite-Keystone Company

Republic Steel Corporation  
Rogers Brothers Corporation  
Rogers Dozer Rippers

Seaman-Andwall Corporation  
Seaman-Gunnison Corporation  
Servicised Products Corp.  
Shawnee Mfg. Co., Inc.  
Stow Manufacturing Co.  
Symons Clamp & Manufacturing Co.

Timken Roller Bearing Co., The  
Toncan Culvert Manufacturers  
Association

United States Rubber Company  
United States Steel Corp.  
Universal Form Clamp Company

Waukesha Motor Company  
Williams Form Engineering Corp.

**Unusual Opportunity for  
EXPERIENCED  
CONSTRUCTION  
MACHINERY  
SALES SPECIALIST**

If you are looking for the opportunity to grow with a nationally known manufacturer of concrete road building and construction machinery, this is your chance. We are seeking an experienced man, 30-45 years old, as a sales specialist with headquarters in Milwaukee. Engineering degree or technical background desirable, but most important qualifications are experience and ability to sell concrete batching and road building machinery through construction equipment distributors. Salary with all traveling expenses paid. Give personal statistics and experience in reply. Replies confidential.

**CHAIN BELT COMPANY**

Box 2022 - Department M  
Milwaukee 1, Wisconsin

"Blacktop Company has two college-trained men to represent manufacturers' products in asphalt, tar, building materials field, mid-western location calling on architects, contractors, Townships, etc. If interested write: Springfield Blacktop, Inc. 516 Northwood Drive, Springfield, Ohio."

**FOR SALE  
COAL STRIPPING  
SHOVEL**

**OSGOOD 1006**

With 2½ Cu. Yd. Bucket and Hi-Lift Boom and Stocks. Machine in excellent condition.

**MULZER BROTHERS**

6th & Franklin Sts. - P. O. Box 60  
TELL CITY, INDIANA

**FOR SALE**

International 1091 Power Unit (UD-24) equipped for Butane or Natural gas. Long skid base, extended shaft, out-board bearing and V-belt sleeve. Practically new.

Pioneer Portable secondary crusher unit. Model 140 with 40x22 Roll, 4x10 screen Caterpillar D13000 power. Set of Symons 3' standard mantle and bowl liner, coarse bowl. New, never used.

½ yd. Link-Belt Dragline LS-40 with Caterpillar Engine.

Bucyrus-Erie 22T Churn Drill with set of Tools, crawler mounted.

**COOGAN GRAVEL CO.**

811 Lehmann Building  
Phone 3-9553 - Peoria, Illinois

**FOR SALE  
USED EQUIPMENT**

- 2—11" Wheel Pneumatic Rollers
  - 125 Cubic Ft. Schram Compressor
  - 1—Double Drum Sheepsfoot Tamper
  - 1—Seaman Mixer
  - 1—Bros Self-propelled Rubber Tire Roller
  - 1—Patch Mixer—McConaughay
  - 2—Wagner Mobile Scoops
- ALL EQUIPMENT IN GOOD CONDITION  
**PETZOLD EQUIPMENT CO., INC.**

R.D. #1, Owego, N. Y.  
Phone—Owego 1156—1157  
Endicott—83349

**Roads and Streets Clearing House  
REACHES THE MARKET'S HEART**

**INDIVIDUAL CONTRACTORS**

**CITY, COUNTY ENGINEERS**

**CITY, COUNTY OFFICIALS**

Long a leader serving the heavy construction and associated fields, **ROADS AND STREETS'** "cream" circulation goes to the important men in the business. They are the men, who directly or indirectly influence the purchase and sales of new and used equipment and supplies.

When you are "in the market" reach the logical buyer or seller quickly—at a reasonable cost to yourself.

Use the Clearing House!

Just clip the coupon below and attach your copy.

**CLIP YOUR AD COPY TO THIS HANDY ORDER FORM AND MAIL TO**

**CLEARING HOUSE SECTION  
ADVERTISING RATES**

TRANSIENT RATE — \$11.00  
Per Column Inch Per Insertion

CONTRACT RATES — Based on use of total space indicated within yearly period.

12 in. ....	\$10.45
24 in. ....	10.55
36 in. ....	10.00
48 in. ....	9.90
60 in. ....	9.80
90 in. ....	9.65
120 in. ....	9.50
180 in. ....	9.25
360 in. ....	9.00

**COPY AND CLOSING DATES**  
Final closing date is the Fifteenth of the preceding month. Magazine is issued 1st of publication month. If proof is desired, copy must be received 5 days preceding closing date.

**CLEARING HOUSE SECTION  
ROADS AND STREETS**

22 W. MAPLE STREET, CHICAGO 10, ILL.

Please Insert the Attached Advertising Copy in the Next Issue of **ROADS AND STREETS** to Occupy.....Inches of Space.

Number of Insertions.....

NAME.....

COMPANY.....

ADDRESS.....

CITY..... STATE.....

**TELL US WHAT YOU HAVE TO OFFER  
AND WE'LL SET UP THE AD FOR YOU.**




# NOW! DOUBLE AND TRIPLE-DECK VIBRATING SCREENS

are available on the

## KOLMAN

COMPLETELY PORTABLE  
CONVEYOR-SCREEN PLANT  
CONVEYOR • SCREEN • TRAP • FEEDER



Yes, now it's possible to accurately make several sizes of material at one time . . . to scalp out oversize and reject fines in a single operation . . . on a portable outfit—the KOLMAN Model 101 Conveyor-Screen plant.

Above, a 6'x36" KOLMAN double-deck screen on a 50'x30" KOLMAN Model 101 Conveyor for loading and sizing coal.

KOLMAN Screens, designed to eliminate all excess weight, are ideally adapted to conveyor installations. Their "Floating Action" delivers vigorous impact without transmission of vibrations to the conveyor.



**SEND for FREE literature**  
**KOLMAN** Manufacturing Co.  
5200 West 12th St.      Sioux Falls, S. D.

5'x32" KOLMAN triple-deck screen on a 50'x18" Model 101 Conveyor to make various sizes of sand and aggregate for oil field road building in Wyoming. Note the conveyor supports these screens without additional bracing.

## MULTIFOOTE 34E PAVER

Serial No. 46-D—704 G.M. Powered with 671 Diesel

Approximately 85% New  
EXCELLENT CONDITION

See To Appreciate

### SWEENEY TRACTOR CO.

1622 Front St.      Fargo, N. Dakota      Ph. ADams 2-3305

### PILE DRIVING EQUIPMENT

**VULCAN AND McKIERNAN-TERRY**  
Steam Pile Hammers and Extractors

- DROP HAMMERS
- STEEL LEADS
- DRIVING CAPS
- PILE DRIVER HOSE
- HOISTS AND BOILERS

### STEEL SHEET PILING

Pcs.	Section	Length	Location
200	MP-116	50 to 60 ft.	Kansas City
200	MP-115	50 to 60 ft.	Kansas City
150	MP-112	50 to 60 ft.	Chicago
450	MP-116	35 to 60 ft.	Chicago
175	MP-115	50 to 60 ft.	Chicago
180	MP-112	19 to 20 ft.	Nebraska
1300	SP-6a	15 to 47 ft.	New York

## CONMACO, INC.

PHONE DRexel 1-3940  
514 Kansas Ave., KANSAS CITY, KANSAS

### SHOVEL BARGAINS

BUCYRUS-ERIE 38-B Shovel, Serial 117-479. 1 1/2 yd. Dipper. IHC UD-1091 Engine. Only 2676 hours since new in 1957. With a new guarantee. F.O.B. Montgomery, Alabama . . . \$47,500.00

L-2 QUICKWAY on Crane Carrier. Combination Shovel & Dragline. Like new and guaranteed . . . \$12,500.00

LS-50-1 Lorain 1 yd. Shovel. GMC 4-71 Engine. Good condition and appearance. . . \$16,000.00

### RAY-BROOKS MACHY. CO.

2275 W. Fairview Ave.      AM 2-1651  
MONTGOMERY, ALABAMA

### 600,000 FT. 8" PIPE

Wt. 28 3/4 to the ft. Layweld, plain, and beveled for welding. 20' or 40' length No. 1 grade. F.O.B. cars.

Indiana-Ohio Pipe Co.  
P. O. Box 323, Decatur, Indiana - Ph.: 3-4674

MARION 111M. Dragline, 5 cu. yd. bucket, 80 ft. boom, \$9525. New 1951. Twin GMC Diesel, electric swing. Reconditioned. \$62,500.00. Rental purchase. Indiana.

KOENIG 1985. 2 1/2 yd. shovel. Buda Diesel. New 1948. Good. \$22,500.00. Rental purchase. Mo.

P.A.H. #685 Dragline. 1/2 cu. yd. \$11108 w/70' boom, overhauled. Excellent appearance. Cal. Diesel. \$16,000.00. Terms. McAllen, Tex.

OSGOOD-MARION #820. 1 1/2 cu. Backhoe. Cat. Diesel. New 1953, only used 1650 hours. Looks & runs like new. \$22,500.00. Terms. Can also furnish 80' dragline-crane boom with jib. Fair loads. 1 1/2 cu. shovel attachment for same. Our yard.

MARION #111 M. Dragline. 5 cu. bucket. 1950. Good. \$95,000.00. Indiana.

Backhoe attachments: N.W. #25 \$1500.00; Marion #372. New. 1 1/2 cu. \$4500.00. Can be fitted to other machines.

Shovel attachments: P.A.H. #655B. \$1850.00. P.A.H. #225-A. New. \$950.00 - Unit 1029A. New. \$1,250.00. Bucyrus-Erie 22-B. New. \$1,350.00. Koehring #285. \$500.00. Osmond #810. \$3,000.00. Boom for Quickway w/built in fairleads. 3 sheaves. Like new. \$350.00. Boom sections for P.A.H. #235-A. New. 3' for \$35.00. P.A.H. 150 TC New. 10' for \$45.00.

PILE DRIVER with 35' leads. 3000 lb. Hammer. New, complete. \$1000.00.

CLAMSHELL BUCKETS: Erie 1/2 cu. rehandling. New. \$975.00; Halsey 1/2 cu. standard \$950.00. Several dragline buckets.

L.H.—Gyro-Flo 210'. 2-wheel trailer. Diesel. 1958. Excellent. \$1500.00. DAVEY 210'. rubber mounted. Diesel. Late model. Rebuilt. \$2250.00. L.H. 315 cu. ft. portable w/Waukesha Hesselman Diesel. Good condition. \$1500.00. Rental purchase. Also wagon drills. Yard.

CEDAR RAPIDS Super Rock-it Portable Plant w/2x25 lb. jaw, apron feeder w/hopper, grizzly, 3033 Hammermill, 4x10 2-deck screen, retractor, 2 delivery conveyors, tandem rubber. Twin #671 GMC diesel. Excellent \$29,500.00. Rental purchase. Yard.

CEDAR RAPIDS 28"x36" RB. Jaw Crusher. Late model. Rebuilt, new bearings, jaws. \$5,750.00. Terms. Yard.

We specialize in crushing & screening machinery. What do you need?

MARLOW 6" self priming Pump. 6 cu. engine. Good. \$750.00.

HI-PRESSURE JETTING PUMP. 4" two stage w/ Continental 6 cyl. engine, up to 400' head. New. Cost \$5,750.00. Sell \$1,450.00 Yard.

DITCHING MACHINES: Parsons #88. #150 & #250. Cleveland #148. Buckeye #383. For rent with purchase option. Yard.

BARGER-GREENE #522 Bucket Loader. Rubber tired/swivel conveyor. 4-cyl. Le Roi gas. Good. \$1,800.00.

BUDA DIESEL Power Unit 6DH691. 110 H.P. 4-cyl. overhauled. \$1,000.00.

SILENT GLOW SPACE HEATER. Portable. Electric, excellent. \$200.00.

### WENZEL MACHINERY CO.

565-567 S. 10th., Kansas City, Kans. 3.  
Tel. Mayfair 1-710 - 1711.

### PILE DRIVING LEADS AND HAMMER

20' to 30' Sections.  
Hammer Weight  
3000 Lbs.

### BRAND NEW GOV'T SURPLUS

Adaptable to all makes  
Machines

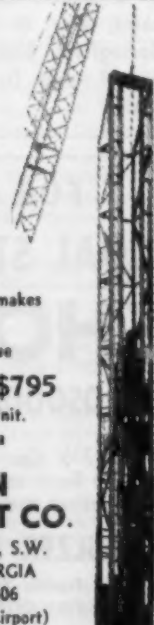
\$2,000.00 Value

### SPECIAL — \$795

For Complete Unit.  
F.O.B. Atlanta

## FULTON EQUIPMENT CO.

2235 Stewart Ave., S.W.  
ATLANTA, GEORGIA  
POPULAR 7-8606  
(5 Minutes from Airport)





## GOOD USED MACHINERY FOR SALE OR RENT

Used D-6 CATERPILLAR Tractor with traction excavator, Mach. No. 9V2885. Condition Good.

Used BARBER GREENE Model 550 Belt Loader, No. 550-5554. New Machine guarantee.

Used BARBER-GREENE Model 705A Ditcher, No. 705A-51-31 Le Roi gasoline engine, 7½"x48" and 5½"x48" bucket line, cab, spoil conveyor, back-filling blade. Reconditioned.

BUCYRUS ERIE ¾ cu. yd. Dragline bucket type AX, No. BB-5. New. Yard Worn. Excellent price.

Shovel Attachment for 205-A Koehring, complete. Machine No. C-4908-4131. LIKE NEW. Used once.

KOEHRING 301 Combination Dragline-Clamshell, 50' boom (Spare Parts for engine and machine), powered with Wisconsin Radiator Cooled Engine. Machine No. 1539. RUNNING.

LORAIN Model L-40 Dragline 40' boom, powered with Waukesha 6 cylinder gasoline engine. Machine No. 9559. ENGINE REBUILT. GOOD WORKING CONDITION.

Used SCOOPMOBILE Model "C" mounted on pneumatic tires. Chrysler gasoline engine, No. C-4634. Reconditioned.

Used BROS Model 26-T portable steam generator, Wisconsin gasoline engine, mounted on two pneumatic tired trailer. Reconditioned.

Used KIESLER Clamshell bucket, material handling type 1¼ cu. yd. capacity, size 750, No. 2233. Condition, Excellent.

Used BLAW-KNOX Concrete Finisher model XE-20-25' with hydraulic transportation wheels. Integral curb attachment, machine new 1956. Laid less than 10 miles. Condition Excellent.

Write, Wire or Phone For Prices

## FUCHS-CLAYTON MACHINERY COMPANY

901 South 40th Street

Phone HARney 8733

OMAHA, NEBRASKA

### FOR SALE BATCH PLANT

Blaw Knox Type K 3300 With:  
Three Compartment Aggregate Bin. Each compartment has capacity of 56 cu. yds. Water level; 67 cu. yds. heaped.

Cement Charging Hopper - 600 cu. ft. cap.  
2 yd. Aggregate Batcher, Blaw Knox Type B-T-M; 12 x 18" Clam Gates with operating levers; 3 Beam Scale with Indicator. Cement Batchers (for 2 yd. Batch) with Rotary Vane Feeder, Beam Scale and Indicator, contacts for Automatic Control.

Water Batchers - 200 Gallon Capacity; Automatic Scale.

3,000 Barrel Cement Silo, 22' Diameter, Cone Bottom with 14" Rotary Valve and Emergency Slide Gate.

2 - Koehring Model 565, 2 cu. yd. Mixers and also available for use with this plant. These mixers are located at Highland Mills, N. Y.

Bucket Elevator, Capacity 50 tons per hour of cement; 71' Center to Center of Sprockets; complete with motor and drive; two-way flop gate with chutes to silo or cement charging bin.

Truck Receiving Hopper with screw conveyor to bottom of elevator.

Under-track screw.  
2 - Koehring Model 565, - 2 cu. yd. Mixers are also available for use with this plant.

These Mixers are located in Highland Mills, New York.

**WALSH CONSTRUCTION CO.**

P. O. Box 44396 - Tamiami Station  
Miami 44, Florida  
Telephone: TUxedo 8-5243

### FOR SALE

Subject To Prior Disposition

1 Used A-W 30" x 42" Jaw Crusher, Anti-Friction Bearings. Excellent condition. 60 days guarantee ....\$12,500.00

1 Used Seco 4' x 12' two-deck Screen with bin mounting .....\$1,750.00

1 Model L Insley ¾ yd. Backhoe, Cat diesel power. Completely rebuilt under factory supervision. Factory guarantee .....\$13,500.00

Also practically new Shovel Front with ½ yd. Dipper. Will fit Models K or L Insley .....\$1,500.00

All prices F.O.B. Nashville Area.

**SOUTHERN MACHINERY  
COMPANY, INC.**

75 Trimble St. - Tel.: ALpine 4-9441  
Nashville 10, Tennessee

### ROAD EQUIPMENT

1-Holtzel Flex-Plane Finishing Machine 12' - 18' Wide

1-Koehring - Longitudinal Finishing Machine

1-Cleveland Formgrader

All of the above used on one (1) job only.

**CONSTRUCTORS EQUIPMENT CORP.**

SH 8-4475

345 N. 57th Street

Phila., Pa.

### FOR SALE OR RENT

Caterpillar D-2 with hydraulic dozer.

Allis-Chalmers HD-9 with hydraulic dozer.

International Harvester TD-9 with hydraulic dozer.

1 Ferguson Tractors with backhoes, one with loader.

LeTourneau "FT" Scraper.

LeTourneau-Westinghouse Model "C" Tourn-a-tractor.

Model "L" Insley with long tracks, gasoline engine, 45' boom, 30" pads and fairlead.

3 Model J Quick-Way Backhoes, mounted on 6 x 6 trucks.

½, ¾ and ¾ yd. Hendrix Drag Buckets.

Sauerman Slackline with 1 cu. yd. modern design bucket, 70' tubular steel mast, GM 6082 diesel engine with Allison torque converter, hoist controls, 600' track span, 2-drum hoist. \$18,200.00

**MILLER MACHINERY, INC.**

7255 W. Washington St.  
Indianapolis 21, Indiana  
Ph. CHapel 1-2511

# FOR SALE

## T-9 Swing Cranes

INTERNATIONAL T-9 TRACTOR with TRACKSON  
SWING CRANE

Price Each  
**\$4250<sup>00</sup>**

SPECIAL PRICES ON  
QUANTITIES

Capacity 7000-8000 lbs. Boom Swing 280°

T-18 Swing Crane, Unused.  
2 #5-R Caterpillars with Hydraulic Angle Blades, Unused.  
1 #5-R Caterpillar with LeTourneau Cable Blade, Like New.  
1 #5-R Caterpillar with Hydraulic Blade and Double Drum Unit on rear. Unused.  
1 #12 Caterpillar Patrol.  
1 D-7-M Tractor.  
1 D-8 Tractor.  
315 cu. ft. air compressor, diesel and gas engine. Worthington & Sullivan.  
2 Ton Y & T Spur Geared Chain Hoist.  
3 Ton Chester Spur Geared Chain Hoist.  
5 3KVA Light Plants O'Keefe & Merritt Generators and Hercules Engines.  
Electric Motors, Switch Boxes & Starters.  
Many Salvage Items, Machinery & Supplies.  
1 15,000 pound Ross Fork Lift Truck.  
1 6,000 pound Ross Fork Lift Truck.

### JACK HARRISON & COMPANY

Hiway 80 West — P. O. Box 2107  
JACKSON, MISSISSIPPI  
Phone: FLeetwood 3-5417

FOR SALE—"WHITE" Asphalt Plant, 1/4 ton Batch, complete including cold hoppers, reciprocating feeders, dryer, pugmill and gas motors. Fully portable. In first class working condition. \$3,600.00 F.O.B. your trailer.

### COLD-MIX-INC.

50 Haarlem Ave. White Plains, N. Y.  
Ph. WHITE PLAINS 9-2000

## FOR SALE

22 B. Bucyrus-Erie Shovel Front -  
Like new.

6000 lb. Wrecking Ball - Pear  
Shaped - new, 1955 Terrotrac  
Model 500 W/hydraulic Dozer,  
excellent condition.

TERMS:

### S & K CONSTRUCTION

Westchester, Illinois  
Fillmore 3-4775  
Lake Geneva, Wisconsin  
Chestnut 8-4493

## WE MAKE

Conveyors, Bucket Elevators, Vibrating Screens,  
Feeders, Crushers and other equipment for  
the HEAVY CONSTRUCTION industry.

Distributors of motors, transmission equipment  
and conveyor belting. Immediate delivery on  
quality equipment at bargain prices. Ask  
for free catalog.

### BONDED SCALE and MACHINE COMPANY

25 Bellevue Columbus 7, Ohio  
Phone: HI 4-2186

### DEPENDABLE USED MACHINES

Inslay K-12 dragline  
#614 Unit 1/2 yd. backhoe  
Pioneer 30"x200" conveyor  
Austin 8 ton Roller KT-142  
Bay City 1/2 yd. Model 25 hoe  
Fordson backhoe & loader #850  
TRACTOR & EQUIPMENT CO.  
10032 Southwest Highway, Oak Lawn, Ill.

## GOING OUT OF BUSINESS Reason for Selling

D-7 Caterpillar  
3 D-8's s/n 2U-17039, 17040, 17041.  
D-8 s/n 2U20536, with Blade  
2 D-8's s/n 13A-1204 & 1536  
D-8 s/n 13A1686 Tom Cat with Blade  
and Push Block  
D-9 s/n 19A452, with C Frame & Push  
Block  
D-9 Cat Ripper s/n 65C202  
DW 21 Scraper s/n 8W1239  
2 Euclid 8TDT Scrapers s/n 13796, 14692  
2 Euclid 14TDT Scrapers s/n 15855, 16332  
Euclid Model S-7 Scraper, s/n 3VDT-265H  
Model B. Silent Glow Heater  
Galion 116 Grader s/n MD12000  
2 Galion 118 Graders s/n 6MD-19225  
and 21922  
2 1/2 yd. P & H Shovel  
85' Boom, 3yd. Drag Bucket, complete  
Shovel Front and 1 yd. Dipper for Lima  
Paymaster  
Lincoln Welder on Ford 3/4 T. Truck  
3" Rex Centrifugal Pump  
3" Gorman-Rupp Pump  
3-2" Gorman-Rupp Pumps  
3000 watt Kohler Light Plant  
1500 watt Kohler Light Plant  
Schramm Air Compressor

All equipment cleaned, painted and  
in good working condition. Subject  
to prior sale. F. O. B. Mansfield,  
Ohio.

## GEO. B. HERRING & SON, INC.

30 Junction St., Mansfield, O.  
Telephone: LAfayette 2-1872

4-6x14 SIMPLICITY VIBRATING FEEDERS.  
Complete HYDRATED LIME PLANT 80 tons/day.  
37 Stearns BLOCK PLANT 4", 8" & 12" blocks.  
35-Link Belt 18" SCREW CONVEYORS 18 1/2 ft.  
Barber Greene model 948 ASPHALT PLANT com-  
plete with all accessories and paver.  
2-64-B electric SHOVELS, each.....\$26,500  
Lima 802 SHOVEL, new 1948, parts.....\$24,250  
Kochring 800 SHOVEL, new 1946, parts.....\$19,350  
37-B SHOVEL-DRAWLINE, new 1936, with an  
extra D-13000 engine included.....\$ 8,950  
N. W. 25 SHOVEL-CRANE, new 1948.....\$11,500  
Crushers: jaw, cone; gyratory; roll; hammermill;  
Impactors: ball, rod & tube mills; screening,  
crushing & washing plants - Classifiers - Com-  
pressors - Conveyors - Cranes - Drills - Dump  
Cars - Dredges - Engines & Motors - Feeders -  
Generators - Hoists - Kilns & Dryers - Loco-  
motives - Pumps - Screens - Shovels & Drag-  
lines - Transformers - Euclid Trucks.

STANLEY B. TROYER EQUIP. CO.  
Box 97 Phone 500 Crosby, Minnesota

## EUCLIDS

7-63TD 22 ton rear dumps.  
9-SOTD 22 ton rear dumps.  
New 1956.  
PRICED TO SELL.

## FRANK FAMALETTE EQUIPMENT CO.

P. O. Box 325  
Hazleton, Pa. GL 5-4708

NEW PRICES TOO HIGH?

SAVE MONEY ON THESE

# CATS — EUCLIDS — LETOURNEAUS!

- 3—CATERPILLAR DW21's 1900 hrs. from \$32,500.00
- 7—CATERPILLAR D8 Dozers & Push Tractors, 15A & 2U Series from 6,500.00
- 4—CATERPILLAR DW20 Tractor & Scrapers, 21C Series from 15,000.00
- 5—CATERPILLAR D9 Dozers & Push Tractors, 19A Series from 30,000.00
- 4—B TOURNAPULLS, One & Two years old, Cummins Diesel from 26,800.00
- 4—C TOURNAPULLS, Cummins or GMC Diesel, 1 to 5 yrs. old from 11,000.00
- 3—AC HD20 and 1—HD19 Push Tractors, 4 to 6 yrs. old from 3,500.00
- 2—AC HD21 Push Tractors, Used only 2 seasons, 3 yrs. old from 9,500.00
- 1—IH TD24 Dozer, 3 yrs. old, Retracked & reworkers 10,600.00

ONE COMPLETE—EUCLID SCRAPER & BOTTOM DUMP SPREAD—Consisting of 8—14TDT Tractor & Wagons with 8 Model S18 Scrapers. This group we would like to sell as a package but will entertain alternate offers.

1—PARSONS Model 310 Ditcher. Like New, make offer.

- 3—EUCLID Mod. 108 Bottom Dumps, 25 yd., 25.00 x 33 tires—make offer.
- 1—EUCLID Mod. 108V Loader, Cost \$52,500.00 new—Our Price \$20,000.00
- 4—CATERPILLAR No. 12 Motor Graders, 8T-1 to 8T-7 Series from 7,800.00
- 3—ADAMS Mod. 440 Motor Graders, 3 mo. old, like new from 13,500.00
- 1—LE TOURNEAU Mod. M. Scraper, Excellent Shape, Good Rubber 2,650.00
- 1—LORAIN Mod. 820 Crane, Excellent working condition 23,500.00
- 1—BLAW KNOX Sproader, 25', This is a new machine—Save \$3,000.00
- 1—KOEHRING Bull Float, Good Working Condition, 24' 4,875.00
- 1—BLAW KNOX Finishing Machine, to 24', Priced at 11,500.00
- 1—BLAW KNOX Sproader, Ready for work, Priced at 14,800.00
- 1—NORTHWEST Mod. 6 Backhoe, Murphy Diesel, Top Condition 36,000.00
- 3—REX, 3 Yd. Truck Mixers on International Chassis—Make Offer

## FOR RENT

TRUCK CRANES 10-Ton to 70-Ton. Up to 200 Ft. Boom

CRAWLERS 25-Ton to 100-Ton Up to 200 Ft. Boom

LOCATED IN ALL PARTS OF THE U.S.

## AMICAL EQUIPMENT COMPANY

BOX 425

OAKTON ST.

PHONE VANDERBILT 4-4445

DES PLAINES, ILL.

## FOR SALE

T6K Michigan Backhoe, C16 Michigan Backhoe, Byers 83 Backhoe, 1956 Fard Backhoe, 301 Kochring Crane with magnet generator, T6D Michigan Crane with new Kohler Generator and 29" Ohio Magnet, Allis-Chalmers HD-10 Dozer real good, DBR Series Cat. Dozer like new, Austin Western Hydraulic Crane 4 wheel drive and steer, 365 Gardner-Denver Compressor with Cat. 13,000 Engine like new condition—2,000 hrs. on good 1950 Brockway Truck, Allis-Chalmers Grader Model 1F592, Cleaver Brooks 2 tank car hoister like new, Fruchart 15 Low boy single axle trailer, 20x18 Stedman Hammer Mill condition good, T6K Michigan Shovel Front, C16-Michigan Shovel Front, 15 B. E. Shovel Front, 1/2 yd. Insley Shovel Front new, 1/2 yd. Byers 65 Shovel Front new, 3/4 yd. Buckeye Shovel Front new, 522 Barber Green Loader on Rubber, 1956 Baker Laying 1 1/2 yd. Bucket Loader on rubber new condition, 20" and 24" Drill Presses, 20" Shaper, 24"x20" Lathe, 16"x6" Lathe, Power Hack Saw, 4" Hydraulic pipe Bender, Van Norman model 76 piston grinder new, HDS Allis-Chalmers track chains 37 lengths new and the price is \$310.00 each.

We have many other pieces of related equipment, and also new and used parts. Let us know your needs.

We own what we offer.

## Waters Supply Co.

1206 S. Fayette St.

Washington C. H., Ohio

Phone (day) 3-4271 (night) 2-6452

## GENERATING SETS

12.5 KVA

U.S. GOV'T SURPLUS  
REBUILT LIKE NEW

- WILLIS JEEP 4 Cyl. engine
- ONAN or O'Keefe & Merritt Generator.
- 120/240V, 60 Cycle, 1 Phase, A.C., 1800 RPM.
- Complete panel with instruments. Totally housed.
- Measures 67 1/2 x 28 1/2 x 38 1/2 h.

\$695

F.O.B.

IMMEDIATE DELIVERY

FROM STOCK.

Other sizes available.

DUFF & CO., INC.

342 Madison Ave. - N. Y. C.

MU 2-9114

## CYLINDER HEAD REBUILDING SERVICE

CRACKS REPAIRED  
MACHINED READY-TO-INSTALL  
VALVE GRINDING  
PRESSURE AND MAGNETIC TESTING  
INTERNATIONAL  
CATERPILLAR

G. M. C.

BUDA

etc.

GAS AND DIESEL

CHAPIN CYLINDER HEAD CO.

9 miles west of Jacksonville in  
CHAPIN, ILL. (Morgan County) PHONE #3

## FOR SALE

- Bucyrus-Erie 38B with D13000 Cat Motor, Short Tracks, 50 ft. Boom and Shovel Front. Excellent. Used approximately 2000 hours. Price... \$37,000.00
- Northwest 6 Shovel, Serial #6883, Murphy Diesel. Price... 15,000.00
- Lorain TL25 Cat Motor, 1200 hours, Drag Front, Backhoe, Shovel Front and Clam Bucket. Excellent... 18,000.00
- 1 Yard General Crane with Gas Motor... 5,500.00
- D8 Cat, Serial #2U20811 with #25 CC and Push Plate... 7,500.00
- LeTourneau LP Scraper, Serial #S8077LPB. Very good... 3,800.00
- Cat #12 Motor Grader, Serial #8T-10610, good... 7,750.00
- Allis-Chalmers AD4 Motor Grader, Serial #AD4-1912. Very good... 4,000.00
- D7 Cat, Serial #3T15771 with #25 CC and 75 Blade. Excellent... 8,500.00
- D7 Cat, Serial #3T13152 with #25 CC and 75 Blade. Excellent... 8,500.00
- DW10 Cat, Serial #6V5149 with La Plant-Cheate CW10, Hydraulic Scraper. Good. Price... 3,750.00
- Lorain Dixie Truck Mounted, Backhoe. Excellent... 8,000.00
- 17B Bucyrus-Erie, Serial #13973, Dragline with Cat Motor and 5/8 yard Drag Bucket. Good... 4,500.00
- Cleveland 95 Trencher, Serial #2683. Excellent... 4,500.00
- Buckeye 120 Ditcher, Serial #4440. About \$3,000 in extra parts. Excellent... 3,500.00
- Galion 5 to 8 Ton Tandem Roller, Gas Motor, Excellent. Price... 2,500.00
- Barber-Greene 848A Asphalt Plant, New 1955... 75,000.00
- Cedar Rapids 60 to 70 ton per hour Batch Asphalt Plant... 25,000.00

Specifications and Pictures on Request.

JIM POWELL

6045 Glenridge Rd. - Tel.: EMerson 6-3331  
CHARLOTTE 7, NORTH CAROLINA



## GOVERNMENT SURPLUS UNUSED OR NEAR NEW CONDITION CHECK THESE BARGAINS

OSGOOD Model 805 #3411 Crawler Crane - Clamshell, 1½ yard, Cat D-13000 with 50' 2-piece Boom. Used only 650 hours. F.O.B.	\$18,500.00
OSGOOD Model 705 #3549 Crawler Crane - Clamshell, 1¼ yard, Buda diesel with 45' 2-piece Boom. F.O.B.	14,500.00
LINK-BELT LS95 #7510 Heavy Duty ¾ yard Crawler Crane and Dragline, Chrysler Industrial Motor. Unused. F.O.B.	10,500.00
LINK-BELT LS75 ¾ yard Crawler Shovel and Backhoe, Cat 4600 diesel. F.O.B.	7,500.00
LINK-BELT LS-50 ½ yard Crawler Crane - Clamshell, Buda Gas Motor. F.O.B.	3,500.00
BAY CITY 65 #2939 1¼ yard Crawler Crane - Clamshell, Caterpillar diesel, 45' 2-piece Boom. F.O.B.	11,000.00
BAY CITY Model 37 #3099 ¾ yard Crawler Crane or Shovel Front, UD-14 diesel. F.O.B.	8,500.00
BAY CITY 20 #5179 ¾ yard Crawler Crane - Clamshell Hercules JXC Gas Motor. F.O.B.	4,000.00
BUCCYRUS-ERIE 15-B #29401 Crawler, ½ yard, Buda Gas Motor. Shovel, Crane or Dragline. F.O.B.	7,500.00
LORAIN MC-3 and MC-4 15-20 Ton Motocranes, with 2-piece new style tubular light-weight Booms. F.O.B.	15,500.00
BAY CITY 180766 #3613 Truck Crane, mounted on a factory Chassis. Equipped with 60' pin type Boom, Fairlead, and Kohler Light Plant. Waukesha Motors in Crane and Carrier. F.O.B.	19,000.00
CATERPILLAR D-7 #16708 with Caterpillar 25 and Caterpillar 75 or 7A Blade. NEW Warranty. F.O.B.	11,500.00

LARGEST SELECTION OF NEW UNUSED BACKHOE SHOVEL, CRANEBOOMS & BUCKETS IN THE COUNTRY. PLEASE WRITE YOUR REQUIREMENTS.

### Udelson Truck Sales, Inc.

3210 Woodland Avenue — Cleveland, Ohio  
Superior 1-1666

## FOR SALE

2—D-9's, good condition. 1 with 30# unit. Cat Dozer and Ateco Hyd. Ripper. Each	\$33,500.00
Cat Dozer, Rails and Rollers, nearly new. 1 with #30 unit	28,500.00
8—HD20's, good condition, with Cat 25 units, Tilt Dozers. Each	10,000.00
2—Cat 80 Flat Bottom Scrapers. Each	8,500.00
1—Cat 80 Round Bottom Scraper	8,000.00

Photos on request. — Terms.

### CARL G. MALCOLM & CO.

GENERAL ENGINEERING CONTRACTORS

18251 Napa St.

Phone: Dickens 5-3500

Northridge, Calif.

## REDUCING RENTAL STOCK TRUCK CRANES

2—20 TON CAPACITY 35' BOOM HENDRICKSON 3 AXLE TRUCKS, PURCHASED BY US NEW FROM MFG. \$13,500.00 EACH, F.O.B. CHICAGO.

### Donald B. MacNeal, Inc.

121st Loomis St. — Chicago 43, Ill.  
Telephone: Pullman 5-5040

**FOR SALE - DRAGLINE**  
KOEHRING Model 1005, Buda Diesel, 80' Boom, 3½ Yard Bucket. Good Running Condition.

Anderson Equipment Company  
P. O. Box 427 - Bridgeville, Penna.  
(Pittsburgh Area)  
Phones: LEhigh 1-6020 or CAanal 1-5300

## STEEL SHEET PILING

### FOR SALE OR RENT

1700 pgs. 80 to 40 ft. Cans. MP-101	New York
100 pgs. 80 ft. Both MP-4	West Va.
400 pgs. 80 to 25 ft. Cans. MP-118	Illinois
140 pgs. 80 & 80 ft. Both. AP-3	New York
180 pgs. 80 & 80 ft. Cans. MP-118	Indiana
240 pgs. 80 ft. MP-118 & MP-118	Tennessee
300 pgs. 40 to 80 ft. 2-22 & 2-22	Louisiana
800 pgs. 40 to 40 ft. 2-22 & 2-27	Maryland

Other lengths and sections at other locations including storage yards at BUFFALO - BALTIMORE - NEW ORLEANS - MEMPHIS - CHICAGO.

McKorman - Terry and Velson Pile Hammer and Extractors Construction and Railroad Equipment

We are as close as your telephone—you can obtain Steel Sheet PILING BY DIALING CHICAGO 1-4474, St. Louis, MO. CHICAGO 1-4474

### MISSISSIPPI VALLEY EQUIPMENT CO.

1506 Railway Exchange Bldg.  
St. Louis 1, Mo. CHICAGO 1-4474

## FOR SALE EUCLID TRUCKS Rear and Bottom Dumps

Bucyrus-Erie Draglines, 2½ yd. to 8 yd.  
Bucyrus-Erie Shovels, ¾ yd. to 8 yd.  
Northwest Draglines, ¾ yd. to 2½ yd.  
Northwest Shovels, ¾ yd. to 2½ yd.  
Manitowoc Draglines, 2½ yd. to 5 yd.  
Manitowoc Shovels, 2½ yd. to 5 yd.  
Marion Shovels & Drags, 4 yd. to 9 yd.  
Lima Shovels & Drags, 1½ yd. to 6 yd.  
Osgood Shovels & Drags, 1½ yd. to 2½ yd.  
P & H Shovels & Drags, all sizes.  
Caterpillar Graders & Dozers.  
Hi-Lift Shovels.  
2½ yd. Crawler Crane.  
TRUCK CRANES—P&H and Bay City.  
51B Bucyrus-Erie Shovel Attachment.  
2400 Lima Shovel front attachment.  
4500 Manitowoc Shovel front attachment.  
DRILLS—6" and 9", diesel and electric.  
6 Northwest Shovel and Drag, 1½ yd.  
80D Northwest Shovel, 2½ yd., Bargain.  
95 Northwest Dragline, 2½ yd., Bargain.  
38B Bucyrus-Erie Shovel, Backhoe & Drag.  
54B Bucyrus-Erie Shovel, Drag, Bargain.  
88B Bucyrus-Erie Shovel, 4 yd.  
120B Bucyrus-Erie Electric Shovel, 6 yd.  
170B Bucyrus-Erie Electric Shovel, 6½ yd.  
9W Bucyrus-Erie Electric Walking Drag, 200' boom, 9 yd. bkt.  
200W Bucyrus-Erie Dragline, 125' boom.  
631 Page Elec. Drag, 200' 8 Yd.  
625 Page Diesel Drag, 150' 10 Yd.  
955 P&H Shovel and Dragline.  
1055 P&H Shovel and Dragline.  
C. S. Johnson Automatic Batch Plant.  
Used Lowbed Trailers.

Other equipment available  
not listed above.

### WILLIAM LUBRECHT, III Construction Equipment

311 W. Diamond Ave. • Hazelton, Pa.  
Phone: GLadstone 5-4041 or 5-0253

## TANDEM TRUCKS

4—1956 RF195 IHC Truck, 157" W.B. RD-501 Engines, FA-110 Front Axle (11,000#) Air Brakes, 15" Clutch, T63 Transmission, A519 Auxiliary - 3-Way RA310 Rear Axle - Tires 11x22.5 Front, 10x22.5 Rear.

5—1953 IHC 195 Diesel Tandems, Cummins Diesel Engines, 157" W.B. 2A45 Auxiliary, F54 5-Spd. Transmission, Air Brakes, 28M Axle - Tires 10:00x20 Front, 9:00x20 Rear.

4—1956 T800 Fords with 8 to 10 yd. new Anthony dump bodies.

7—1956 F-900 Fords with Tag Axle F54-5 Spd. Transmission, 3-Way Auxiliary Transmission. Equipped with 8-10 yd. Anthony Dump Bodies.

### A. J. RHIAN

INTERNATIONAL TRUCK DEALER

Phone 2527

YANKTON, SOUTH DAKOTA

## Wanted - Discarded GM51-71-110 Injector Parts

Highway 7120 Carnegie Ave.  
CLEVELAND 3, OHIO



## FOR SALE

(location at  
Cedar Rapids, Iowa)

1—53x60 Heavy-duty, Double-Impeller, Iowa Mfg. Impact Breaker in excellent mechanical condition, complete with feeder. Used about 7 months.

1—155' x 42" conveyor

1—160' x 42" conveyor

Complete with troughing and return rolls, gravity take-up assembly and belt. Used 7 months and in very good condition.

For Sale (location near Marion, Virginia)

1—Link Belt-Speeder Shovel, Serial No. 2744, Model K-370, GMC Power Unit Serial 6-21241, Model 60300-LH R.P.M. 1825

48" x 30 ft. Eagle Iron Log Wacker, new cond. Used 700 hrs. Complete with Power G.M. Diesel.

1—P & H Shovel, Serial 12267, Model 1055 LC, Buda Power Unit, Serial No. 36984F, Model 6DCS 1879, Light Plant Kohler, Serial 142110, Model E Drag-line Bucket 4 Yd.

Call:

**Concrete Materials  
& Construction Company**  
Cedar Rapids, Iowa  
Tel.: EMpire 4-0201

or

**Mining Contractors, Inc.**  
Kenneth Ulrich, Supt.  
Tel.: 921  
Sugar Grove, Virginia

ONE MAN and a MAINCO WHEEL can  
beat 2 MEN using CHAIN or TAPE!

**MAINCO**  
DISTANCE  
MEASURING  
WHEEL



Send for  
descriptive  
folder.

THE MAINTENANCE CO., INC.  
Dept. "D", 453 W. 42nd St., New York 36, N.Y.

## FOR SALE

**LATE MODELS MIDWEST LOCATIONS**  
Manitowoc 3000-B's, 3500's erect cranes—  
shovels, long booms, wide long cuts—  
diesels. Also 2000-B's.  
Northwest 6's, 80-D's, and 95 cranes—drams  
—shovels, diesels, wide long cuts—long  
booms. Ind. BH's.  
Bucyrus-Erie 35-B's, 51-B's, 54-B's, cranes—  
drams, shovels, diesels, wide long cuts—  
long booms.  
Marion, Koehring, Link Belt & Lorain model  
cranes—drams—shovels, wide long cuts—  
diesels. Also backhoe equipped ma-  
chines, all types.

**JAMES C. FRENCH**  
P. O. Box 188  
328 Berry Pkwy. - Telcote 3-4837  
PARK RIDGE, ILLINOIS

READY TO GO! . . .



. . . PRICED TO SELL!

100 T.P.H. Plant . . . As Pictured August 1, 1958

## GET STARTED IN ASPHALT FOR A NOMINAL FIGURE

Financing Available

Manufacturer has taken this plant in  
trade on a new higher capacity plant.  
Although a few years old, it has been  
very well maintained by experienced per-  
sonnel. Plant ran through August 1958  
and is in good operating condition. Prin-  
cipal features are 12"x7" elevator, 2½ ton  
mixer, 50 ton, 4 compartment hot bin,

large cold feed system complete with (2)  
F-33-DT syntron feeders, (2) 48"x30'-0"  
long dryers with low pressure burners,  
4'x10', 2½ deck nearly new screen, (2)  
Cummins diesels 150 & 200 H.P., and  
many other features such as all Link-Belt  
chain & bearings. This plant is complete  
and ready to go.

Box No. 1209, Roads & Streets, 22 West Maple St., Chicago 10, Ill.

A SPECIAL OFFERING OF NEW - PRIME QUALITY

## ½" Wire Rope & 3/16" Welding Rod

½" WIRE ROPE, 6 x 19, high grade plow steel, regular lay, hemp center, 600' and 1000'  
reels.

8¢ TO 12¢ PER FOOT

3/16" STEEL WELDING ROD, covered, 14" long, A.C. or D.C., straight polarity, suitable  
for all position welding, titania-potassium type covering. 50 lb. boxes.

\$3.00 TO \$5.00 PER BOX

PRICES BASED ON QUANTITY PURCHASED

Write . . . . . Wire . . . . . Phone

MACHINERY DIVISION

**TACOMA JUNK CO.**

Route 12, Box 4, Tacoma 22, Washington - Tel. WAverly 2-6122

## FOR SALE OR RENT

1 - LeTourneau-Westinghouse Tournado-  
dozer. No worn pins and bushings, no  
worn rails, no beat-up sprockets, but a  
smooth running, high speed, rubber tired  
dozer. Here is a really excellent trade-in  
that will give plenty of long dependable  
service.

**ILLINOIS CONTRACTORS' MACHINERY,  
Inc.**

Chicago Phone: TUxedo 9-0871

## FOR SALE

1—Transverse Screen Blaw-Knox Concrete Pav-  
ing Finisher, Model XE, with Front Crown  
Screed (25 ft.). Purchased new 1952;  
never used.

1—Blaw-Knox Concrete Spreader (25 ft.).  
Rebuilt in 1952.

1—Heltzel Dummy Joint Transverse and Longi-  
tudinal Flex Plane Machine. Purchased  
new 1951; used 6 months only.

1—Koehring Longitudinal Finisher with Auto-  
matic Screed Shift and Crown Transition  
attachment. Purchased new 1951; used on  
one job.

ALL THE ABOVE OFFERED FOR \$18,000  
**MAHONEY-CLARKE, INC.**  
217 Pearl Street, New York 38, New York

## CLEARING HOUSE SECTION

CALL UPON MUTUAL FOR THE NATION'S LARGEST

# PARTS STOCK

Headquarters All Heavy-duty Equipment, Supplies & Parts

• DUMP TRUCKS • LOADERS • CRANES • ENGINES

Lowest Prices - Complete Satisfaction Guaranteed

### NEW and Guaranteed REBUILT ENGINES

Completely Dynamometer "Run-In" and Tested in our own modern, extensive rebuilding shops.

- HERCULES • CUMMINS
- CONTINENTAL • WAUKESHA
- GMC DIESEL

2000 S. WABASH AVENUE  
CHICAGO 14, ILLINOIS

QUALITY — SERVICE — ECONOMY



Telephone: CAJumet 5-3500

## FOR SALE

1956 T-700 TANDEM FORD  
TRUCK WITH 24 CU. YD.  
REFUSE PAK-MAR BODY

196 H.P. new engine, very little mileage.

3 Speed aux. transmission.

8 New Mechelon puncture proof steel cord tires, (825 x 20) 10 ply.

New paint job.

Truck in excellent working and mechanical condition.

Original cost, \$14,000. Will sacrifice for \$8,000.00 cash.

ALSO FOR SALE:

1953 TD-18A INTERNATIONAL  
BULLCLAM BULLDOZER

In good condition. Ready for work for \$5,000.00.

SEND REPLIES TO:

**FRANK STOLAR**

Patchett Rd., RFD 3 - Baldwinsville, N. Y.

## DRAGLINE MATS

Any Length, Width or  
Built to Specifications.

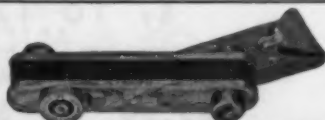
We build them a little better for a little less.  
STRICTLY HARDWOOD.

Also LUMBER and PILING

**Kent Piling Co., Inc.**

T. W. "TOM" KENT, PRESIDENT

Phone Days: Amite 2641 - 2644 - Night 8454  
FLUKER, LOUISIANA



New pocket-size optical RANGE FINDER quickly and accurately measures to 250 yards. Use for: Surveys, excavations, ditches, paving, black top, roads, driveways, parking lots, sidewalks, quarries, mines, curbing, drains, electric lines, across rivers, and many other measurements. If you order this Range Finder today it will soon earn many times its low cost by saving your valuable time and replacing guesswork with exact figures on all job estimating. Complete with case, instructions and 3 year guarantee. Price now only \$19.50, postpaid.  
McCormac Supply Company, Tarrytown 7, N. Y.

## FOR SALE

Rex Pumpcrete Machine  
Complete with 300 feet pipe and fittings.  
Model 160-S. Serial No. CZ-641. Has pumped approx. 1500 yds. concrete.  
\$11,000.00

**H. & L. CONSTRUCTION CO., INC.**

P.O. Box 316  
Kingwood, West Virginia

## BARBER-GREENE EQUIPMENT FOR SALE

BARBER-GREENE Model 705 "Runabout", Pneumatic Tired Ditcher, enclosed cab 5" x 48" cut. Condition Good.

BARBER-GREENE Model 804 Mixall Portable Hot Asphalt Dryer-Mixer, Capacity 3 to 10 T.P.H. Like New.

BARBER-GREENE Model 879A Finishing Machine, Four Speed Transmission and Hydraulic Lift. Condition Good.

BARBER-GREENE Model 711 Ditcher with Dodge Powered Wagon. Four Wheel Drive, 15" x 60" Cut. Condition Very Good.

BARBER-GREENE Model 44C Ditcher, powered by Gasoline Engine, 21" x 8'3", mounted on Crawlers, Condition Very Good.

## PRIESTER MACHINERY COMPANY, INC.

249 S. Third Street - Phone JACKson 5-6885  
Memphis, Tennessee

## FOR SALE

(3) Complete Ready-Mix Concrete Heating Plants as follows:

(1) 100 H.P. Cleaver-Brooks Steam Generator  
(1) O & S Powermaster, 50 H.P. Steam Generator

(1) Cylatherm, 90 H.P. Steam Generator  
All of above are complete with automatic controls and hot water tanks equipped with Patterson Kelly coils. Any one of the above units will supply enough steam and hot water to produce 150 yards of heated concrete per hour.

(2) 150 ton—6 compartment Heitzel Batching Bins, 4 compartments for aggregates and 2 separate compartments for cement, together with 500 barrels cement silo, undertrack screw, cement elevator and separate scales.

(1) 100 ton—3 compartment Batching Bin with 2 yard weigh box.

(2) Model DC-100-64 Tandem Axle Autocar Trucks with 6½ yard Smith Mixers

(3) Model C-90-64 Tandem Axle Autocar Trucks with 5½ yard Smith Mixers

(1) Model F8-Ford with 3½ yard Smith Mixer.

**GENERAL SAND AND GRAVEL CORP.**

705 Oakwood Ave. Hartford, Conn.  
JACKson 7-9291

## SULLIVAN

Model 22HD Diamond Drill; A-2 Head, Hydr. 30" Feed; Winthead Attmt., 19' Tower, Gas Eng. drive, skid mount.

## TINKLER EQUIPMENT CO.

2590 Oakdale Avenue  
San Francisco, Calif.

## TRUCKS WANTED

Highest dollar value paid for new and used trucks and all kinds of used equipment. All types of truck equipment bought and sold, including war surplus. Write, phone or wire:

**BILL FISHEL**

**Vandeventer Auto Sales**

717 So. Vandeventer St. Louis 10, Mo.  
Ph. FRanklin 1-1750

### 17th Anniversary Sale Cranes & Shovels

BANTAM "M-49"— $\frac{3}{8}$  yd. Trench Hoe, mounted on International 6x6.  
QUICK-WAY "E"—4/10 yd. Trench Hoe or Dragline, mounted on GMC 6x4 truck.  
P&H "105"— $\frac{1}{2}$  yd. Trench Hoe, mounted Zeligson Carrier.  
LORAIN "TL-25K"— $\frac{3}{4}$  yd. Crane or Dragline, Cat D315 power, 1951 model. Rebuilt.  
KOEHRING "304"— $\frac{3}{4}$  yd. Shovel, GM Diesel, 24" shoes, 12' Crawlers.  
LORAIN "TL-20"— $\frac{1}{2}$  yd. Trench Hoe, Crane, or Shovel. Reconditioned.

#### Miscellaneous

PEERLESS—New 24" x 70'0" Portable Belt Conveyor.  
JAHN "THL-420"—Used 20-Ton Flat Deck Low Boy.  
ROGERS—Used 15-Ton Drop Deck Trailer.  
OWEN  $\frac{1}{2}$  Yd.—Used Clamshell Bucket.  
UNIVERSAL "916"—R.B. Jaw Crusher.  
UNIVERSAL "880 Jr. B"—Port. Gravel Crushing Plant, 3-axle, M-M Gas power, and ejector.  
REX "11-S"—Used 2-Bag End Discharge Building Mixer.  
JAEGER "125"—Used Portable Air Compressor.

NOTE: All this equipment located in our yard except (\*).  
Some of this equipment can be rented.  
Terms!

**EIGHMY  
EQUIPMENT COMPANY**  
120 S. Pierpont Phone 4-6706  
ROCKFORD, ILLINOIS

### FOR SALE

NORTHWEST Dragline, Model 6, S/N 8857 with 60 ft. Boom,  $1\frac{3}{4}$  yd. Hendrix Bucket, 671 GM diesel Engine and Light Plant.  
LINK-BELT Shovel Model LS-90, S/N 7A1850 with 1 yd. Bucket.  
LINK-BELT Shovel Model LS-85, S/N 7A784 with  $\frac{3}{4}$  yd. Bucket.  
P&H Shovel, Model 655A with  $1\frac{1}{2}$  yd. Bucket.  
LORAIN Dragline, Model TL-20, S/N 15791, with 40 ft. Boom, 6 cyl. Waukesha gas Engine, mounted on Maxie Carrier.  
LORAIN Dragline, Model TL-20 on crawlers, S/N 15454 with 35 ft. Boom, Cat. D-4400 diesel Engine.  
INSLEY Model K-12 Dragline, S/N 3061 with 35 ft. Boom and 8 cyl. Chrysler gas Engine.

**DUKEHART-HUGHES TRACTOR  
& EQUIP. CO., INC.**  
4330 E. 14th St.  
Phone AM-50391  
Des Moines - Iowa

## CONSTRUCTION & MINING EQUIPMENT

RECONDITIONED & USED

### For SALE or RENT

Euclid 15 & 18 Ton Off Highway Rear Dumps	Le Roi 600 CFM Portable Piston & Rotary Compressors
Euclid 7 & 18 Yard Scraper Over Hung	Le Roi 125 CFM Self Propelled Compressors
Euclid TC-12 Crawler Dozers or Pushers	Le Roi—Hand Tampers Drill—Breakers—Spades
Euclid 25 Ton Coal Haulers Bottom Dump	Le Roi Wagon & Mobil Drill
Detroit Diesel—AC & DC Generator Sets—Power Units Exchange Engines	Parsons Rubber Mounted Trencher 5' x 16"

### BOTTOM DUMP EUCLIDS

6—Model 43 FDT, GMC Diesel Engines, with 58-W Wagons.  
4—Model 25 FDT, Cummins Diesel Engines, with 58-W Wagons.

### LOADER

1—Model 9-BV Euclid Loader.

### COMPLETE PACKAGE

Illinois Location  
WILL SACRIFICE

## ATTRACTIVE PRICES & RENTALS

FOR INFORMATION

WRITE OR CALL

### RAY C. CALL, INC.

P.O. Box 8245 . . . South Charleston, W. Va.  
POplar 8-1253

## ASPHALT PLANT FOR SALE

Complete, Ready to Operate Plant:

Two Ton Cummer Mixer, Complete Hot & Cold Bins, Syntrol Feeders,  
Tankage with Electric Heating Units, All Electrical Controls, Etc.

PRICE: \$35,000.00

### BURRELL CONSTRUCTION & SUPPLY CO.

ONE FIFTH STREET

NEW KENSINGTON, PA.

### FOR SALE Crawler Loader

1956 Allis Chalmers Model HD-20G with  $4\frac{1}{2}$  cu. yd. bucket. Powered with G.M. Model 6110 Diesel Engine with Torque Converter. Machine and Engine completely rebuilt in the Fall of 1957.  
Priced to Sell . . . . . \$13,500

### MILLER EQUIPMENT CO. OF DETROIT

32910 Plymouth Rd., Livonia, Mich.  
KENwood 4-8309

#### ATTACHMENTS AVAILABLE

Northwest - Bucyrus-Erie - Lima - Marion  
- Link Belt - Lorain - P&H - Manitowoc  
Shovels - Backhoe - Clam Drag - all sizes.  
JAMES C. FRENCH  
P. O. Box 188

226 Berry Pwy. Talcott 9-4927  
PARK RIDGE ILLINOIS

## FOR SALE CATERPILLAR

DW-15 MOTOR SCRAPER

LIKE NEW—ONLY 600 HOURS

WILL SACRIFICE

### JOHNSON BROTHERS

ASHLAND, NEBRASKA

Phone 4-7164 Ashland, Nebraska

after 6 P.M.



## FOR SALE

### Located at Greenup, Kentucky

- 2—Mod. 605 Koehring Comb. Shovels and Draglines.....\$22,000.00 ea.
- 1—Mod. 605 Koehring Dragline and Crane only.....19,000.00 ea.
- 2—445 c.f.m. I.R. Type 40 Air Compressors, electric.....1,050.00 ea.
- 2—315 c.f.m. Jaeger Stationary Compressors, electric.....1,500.00 ea.

### Located at Oquawka, Illinois

- 1—Mod. 145-100 Clyde Steam Whirley Crane.....30,000.00
- 1—Mod. 200 Rex Single pumpcrete, gas.....1,000.00
- 2—56 Rex Stationary Concrete Mixers, electric.....1,750.00 ea.
- 1—Type B Fuller Kinyon Cement Unloader.....1,000.00
- 2—Butler Cement Car Scoop Unloaders.....600.00 ea.
- 1—Size 135 Sturdevant Turbopane fan, 200HP, electric.....2,250.00

### Located at Decatur, Illinois

- 1—Heltzel Flexi-Plane X Frame Bridge Finishing Machine adjustable 23' to 30'.....7,000.00
- 1—20 Ton Mod. 20T Tampo Pneu. Tired Roller.....2,000.00

### Located on West Coast

- 1—Mod. 1201 Lima Crane and Dragline, Buda diesel.....42,500.00
- 1—Cedar Rapids Super Junior Tandem Port. Crushing Plant.....25,000.00
- 1—Mod. 29T Bucyrus Erie Blast Hole Drill, electric.....4,000.00

Write for our latest Equipment for Sale Bulletin!

### GUY F. ATKINSON COMPANY

10 West Orange Avenue So. San Francisco, California  
Phone—PLaza 6-0300—Ext. 279

## BOTTOM DUMP EUCLIDS



4—13 Yd. Euclids @ \$7,500 each  
Engines: 165 Cummins Diesel, Serial Nos. 4781, 4782, 4783 & 5047

1—13 Yd. Euclid @ \$8,500 each  
Engine: 200 Cummins Diesel, Serial No. 3329.

Model No. All Five Tractors 25FDY  
Model No. All Wagons 58W

600 C. F. Chicago Pneumatic Rotary Air Compressor SN-58287—\$12,000

1—LeTourneau Ripper, Medium for D-7 Tractor @ \$1,000.00

2—Caterpillar No. 28 Rippers @ \$2,000 each

1—¾ Yd. Shovel front for Model 41 Lorain

All above equipment in excellent operating condition and can be seen at our Yard, 718 Murfreesboro Road, Nashville, Tennessee

## McDOWELL & McDOWELL

P. O. Box 1144, Nashville, Tenn.

Phone AL 5-0304

## FOR SALE

13—1956 and 1957 White Tandem Dump Trucks, Model 55-2264. 34,000 lb. bogies. 11,000 lb. front axles. Beds are 12 ft. 6 in. x 7 ft. x 42 in.

6—1957 International Tandem Dumps, VF and RF Models. 34,000 lb. bogies and 11,000 lb. front axles. Beds are 13 ft. x 7 ft. x 48 in. and 42 in. All in excellent condition. Will lease.

### A. S. JOHNSON

2507 Archwood Ave.  
Phone: SHadyside 9-1660  
CLEVELAND 9, OHIO

## WANTED

Used 1500#/2000# asphalt plant, including tower, screen and bin assembly, weigh box, mixer assembly, and hot stone elevator only; or the equivalent in a continuous mix plant.

General Construction Co. (Alberta) Ltd.  
Lethbridge, Alberta.

## WANTED

Used 4000# asphalt plant  
Send all details first letter

NORTHWOOD STONE & ASPHALT CO.  
RFD #2  
Belle Center, Ohio

## Government Surplus EARTH MOVER TIRES

Unused 18-00 x 24  
Wheels, tubes, axles available ... **\$150**

Unused 11-00 x 20  
14 ply N.D. .... **\$ 50**

First line, complete with tube and flap.  
With 10-hole Budd wheel—mounted...\$72.50

Brand New! Latest type! Austin-Western  
8000-lb. HYDRAULIC CRANES

Cost gov't. \$8,700 **\$2750**  
Our price

Complete with cables and outriggers.

### WAUKESHA ENGINES

SRK low-mileage takeouts with all accessories **\$495**

145GZ Removed from unused vehicles. Complete ..... **\$595**

Check our prices on Army Surplus 4x4 and 6x6 trucks.

All prices FOB Akron, Ohio

## SAM WINER MOTORS

Send for catalog on engines, fork lifts, and fork lift parts.

3417 E. Waterloo Rd. Akron 12, Ohio  
MAYfair 8-2641

## SACRIFICE

2-C—Turnomatic Tournapulls

Excellent Rubber

Ready To Go

See To Appreciate

SWEENEY TRACTOR CO.

1622 Front St.

FARGO, NORTH DAKOTA

Ph. ADams 2-3305

## For Rent — For Sale

10—EUCLID  
TWIN-ENGINE SCRAPERS  
Model TS-24

One Year Old  
Excellent Condition

GEO. G. ANDERSON & CO., INC.

14800 Myrtle Avenue  
HARVEY, ILLINOIS  
Phone: EDison 3-0222



## 6-71 GMC DIESEL ENGINES

GOVERNMENT REBUILT TO  
MILITARY STANDARDS

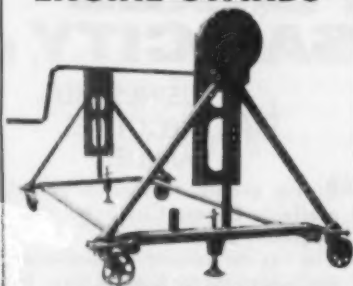
Each engine completely preserved  
and boxed for export. Shipping  
weight 2200 pounds.

For replacement on Euclid or Allis-  
Chalmers Road Equipment - Ap-  
plicable for Marine work, genera-  
tor plants and sawmills - Econom-  
ical for buses and trucks.

### SOUTHEASTERN BROKERAGE CORP.

112 East Platen Rd. 1600 S.W. 16th Ave.  
Phone: EL 5-1633 Phone: MI 4-4253  
Jacksonville, Fla. Miami, Florida

## OFFERING HEAVY DUTY ENGINE STANDS



FOR USE IN REBUILDING  
GASOLINE OR DIESEL ENGINE

This stand can be used for any length engine  
up to 12' long. Ends can be loosened and ad-  
justed to any length opening that is desired.  
This stand is complete with crank and gear for  
turning engine to any angle desired, portable  
on steel caster. This stand is designed for  
tractor engine, auto engine or industrial en-  
gine. Wt. 500 lbs. net. All are new in  
original crates. - Factory cost on these is  
\$370.00 ea. 50 ea. available.

Price - \$50.00 Ea.

F.O.B. Jeffersonville, Indiana

**VETS DISTRIBUTING CO.**

3613 N. Western Pky. - SP 8-8904  
LOUISVILLE 12, KENTUCKY

### MAGNETIC SEPARATOR UNIT

With Diesel driven generator, 36" wide pulley,  
24" diameter, mounted on 32' Flat Bed Trail-  
er. Excellent condition.

### D-8 CATERPILLAR TRACTOR

Serial No. 1H6113. Rebuilt condition.  
MEL. GARR - R.D. 6, GRANT AVE. ROAD  
AUBURN, NEW YORK

# NOW!!

For The First Time

A Complete Selection of the  
Famous

## "EAGER BEAVER"

Ideal For Any "On or Off the  
the Road" Work

Such as Ready Mix  
Dump Crane Mounts and  
Line Trucks, Etc.

### GREEN BROS. TRUCK SALES INC.

5274 Archer Avenue  
Chicago 32, Ill.  
Ph. LUdlow 5-0333



## FOR SALE

- 3-Model D Tournapulls
  - 1-Model C Tournadozer (needs some work)
  - 1-3/4 Davis Backhoe, Excellent condition.
  - 1-10 Ton Tandem Lowboy (Tow type)
  - 1-T-9 Dozer. Needs overhaul. MAKE AN OFFER.
  - 1-Model # 118 Galion Grader. Just reconditioned.
  - 1-Wheel Tampo Roller
- LAYMAN & SEILS**  
693 Spencer St. - Telephone WALnut 6-6608  
BENTON HARBOR, MICHIGAN

### HYDRO-MATS

THE FINEST COCOA BRUSH ROLLER MAT.  
ALL SIZES FOR ALL MAKES OF ROAD PAVERS  
TERRITORIES OPEN FOR SALES  
REPRESENTATIVES  
LIBERAL COMMISSIONS  
**KOFFLER SALES CORP.**  
4236 LINCOLN AVE.  
CHICAGO 18 ILL.

## CLEARING HOUSE SECTION

### NAVY SURPLUS DYNAMITE BOXES

16 Gauge Metal, Plywood lined



22 1/4" long, 13" wide, 12" high, with  
plywood liner and rubber gasket on  
cover, hasp for padlock. Weight 38 lbs.  
each. Uses: Tools, ice chest, dynamite,  
shipping.

**5 For \$19.98**

### STEEL GUNSIGHT BOXES 16 GAUGE METAL



21 1/2" long, 11 1/2" wide, 11" deep, with  
2 drawer pull catches, and carrying  
handle.

Weight - 25 lbs. each

**5 For \$11.98**

### L & L SURPLUS

2222 Oriskany Street, West

UTICA, NEW YORK

Check Or Cash With Order - F.O.B. Utica.

## FOR SALE

### Model C TOURNAADOZER

G. M. Engine  
or will trade  
For Model 2460  
GRADALL

Write Box 73  
Shawsheen Village  
Andover, Massachusetts

### FOR SALE - SHOVELS

TWO (2) NORTHWEST Model 80D Shovels,  
Murphy Diesel, 2 1/2 Yard Dipper, 12,000 Series.  
Machine Priced to Sell.

### Anderson Equipment Company

P. O. Box 427 - Bridgeville, Penna.  
(Pittsburgh Area)  
Phones: LEhigh 1-6020 or CAral 1-5300



● Associated Equipment Distributor's Education Committee and officials of Clarkson College of Technology, Potsdam, N.Y. Committee chairman Charles C. Wing of R. B. Wing & Son Corp., Albany, N.Y., is shown here presenting a check from AED which is extending financial support for the new education program. Accepting for the school is Dr. Charles Van Note, Clarkson President.

### School Offers Course in Equipment Marketing

Practical training in marketing earthmoving and roadbuilding machinery will be offered in 1959 by Clarkson College of Technology, Potsdam, N. Y. The school is establishing a curriculum in "Con-

struction Equipment Distribution" starting September, 1959. It will lead to a bachelor of science degree.

"This new program," said Dr. Van Note, "is an outstanding example of beneficial cooperation between industry and education in solving challenges." He credited Associated Equipment Distributors

for their approval, enthusiastic support and financial backing in planning and establishing the program.

In the study of construction equipment distribution for interested students, the college will offer courses revolving around the equipment itself, Soils Engineering, Transportation and Public Service Facilities, Construction Organization, and, during Junior and Senior years, courses on Civil Engineering.

### Bituminous Concrete Bases Must Be Cored

Base course construction of bituminous concrete in the Virginia department of highways program will be checked for depth by core samples, according to a memorandum issued to the departments district engineer by A. B. Cornthwaite, testing engineer, and J. E. Johnson, construction engineer, in the department's headquarters.

Cores were also being taken this fall from projects which were under construction prior to the date of the memorandum. Under the new procedure re-coring will be taken after corrective measures have been taken in areas of deficient depth.

**New York and the New Yorker**  
HOTEL  
34th Street at 8th Ave.  
*just naturally go together*

New York's largest and most conveniently located skyscraper hotel. 2500 outside rooms, all with bath and free radio. 100% television available. Meditation Chapel open to all faiths. Direct tunnel connection to Pennsylvania Station. Facilities from 100 to 1,200 for banquets, special functions and private meetings.

#### THREE POPULAR RESTAURANTS

Lamp Post Corner Golden Thread Cafe The Coffee House

Singles from \$7 Doubles from \$11 Suites from \$23



JOSEPH MASSAGLIA JR.,  
President

CHARLES W. COLE,  
Gen. Mgr.

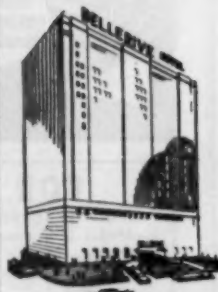
#### ACROSS THE U.S.A. and in HAWAII

SANTA MONICA, CALIF. Hotel Miramar  
SAN JOSE, CALIF. Hotel Sainte Claire  
LONG BEACH, CALIF. Hotel Wilton  
GALLUP, N.M. Hotel El Rancho  
ALBUQUERQUE, Hotel Franciscan  
HONOLULU Hotel Waikiki Biltmore  
WASHINGTON, D.C. Hotel Raleigh  
HARTFORD, CONN. Hotel Bood  
CINCINNATI, O. Hotel Sinton  
PITTSBURGH, PA. Hotel Sharwyn  
DENVER, COLO. Hotel Park Lane  
NEW YORK CITY Hotel New Yorker

World famed hotels—Teletype service—Television

## PREFERRED in KANSAS CITY, MO

by BUSINESSMEN,  
EXECUTIVES,  
FAMILIES



100%  
**AIR-CONDITIONED**  
Home of the famous  
Rhythm Room

**Free Parking**

During certain convention periods, all available Kansas City hotel rooms are frequently taken.

You can be assured of comfortable accommodations in Kansas City, by writing for your FREE "Preferred Guest Card" from the Bellerive Hotel, today. The Bellerive—preferred by the family and business executives for convenience and courteous hospitality at sensible rates—guarantees (with advance notice reservations anytime of the year to you the preferred guest. Ask for your "Preferred Guest Card", today . . . at no obligation. Free Radio & Television set in every Room. Rates from \$4.50

## BELLERIVE Hotel

214 East Armour at Warwick Boulevard

IN CHICAGO IT'S THE HAMILTON HOTEL

20 S. Dearborn Street

## New Frink Officers

**NEW OFFICERS FOR FRINK SNO-PLOWS:** Announcement of new officers has been made by Frink Sno-Plows Inc. of Clayton, N. Y., pioneer firm in snow-plow design and manufacture, serving northeastern U. S. The election of officers follows on the death of the company's founder and president, Carl H. Frink, on April 27 of this year.

New president is George W. Kenyon, formerly first vice president and chief engineer, who has been with Frink for more than a quarter of a century. Vice president on the new slate of officers is Howard Reiman, who will also serve in the capacity of production manager. Holland S. Frink, son of the founder, is now vice president in charge of sales, the area in which he has been active since joining the firm in 1946.

Since the company's organization in 1920 by Carl Frink, it has maintained an advanced position in snow-plow design and development, its most recent contribution being the "Roll-Over" plow.

Frink Snow-Plows and leveling wings are marketed through dealers throughout northeastern U. S. and, in areas not serviced by dealers, are sold to state, county, town, and village road departments. All manufacture is at present centered in the firm's plant in Clayton, 1,000 Islands, N. Y.

## How to Pull Old Frame Buildings Down



About 500 buildings were razed to make way for an expressway interchange that will cover 94 acres in downtown Atlanta, Georgia. Skinner Wrecking Company had the contract for seven blocks of demolition along Washington St. and Woodward Ave. An International Drott TD-9 Skid-Shovel was used for much of the demolition work, such as toppling a chimney, pulling down shacks, as shown, and loading out debris and salvageable material. On loading out bricks, the 1½-yard shovel averages 1,000 per load.

## WHAT ABOUT YOU, MR. READER?

Are you still active in the field? Have you moved or changed your position?

Unless you send this information directly to us we can't be sure. Sometimes a reader's name is cut from the mailing list because we are not sure that our information as to name, title and address is right. *Your* name might be cut from the mailing list.

### Don't Let This Happen to You

Even if you think we know all about you, please fill in the information requested below and send to us by return mail. Our auditors require proof of accuracy of our mailing list. *You* are the only person who can help us on this. Do it now before your forget, so you can be sure your magazine will always be properly addressed to you. New names cannot be added or old names retained on our list unless we have *all* this information. *Please print or type.*

#### ROADS AND STREETS

DATE \_\_\_\_\_

22 WEST MAPLE STREET, CHICAGO 10, ILL.

- ☐ I do receive **ROADS & STREETS** and wish to continue to receive it.  
☐ I do not receive **ROADS & STREETS** but would like to have it.

NAME \_\_\_\_\_

TITLE OR OCCUPATION \_\_\_\_\_

FIRM NAME OR GOVERNMENT DEPARTMENT (give street address) \_\_\_\_\_

CITY \_\_\_\_\_

ZONE (if any) \_\_\_\_\_

STATE \_\_\_\_\_

(If you have moved give old and new address)

SIGNATURE \_\_\_\_\_



# INDEX TO ADVERTISERS

- American Bridge Division of  
United States Steel .....88 & 89  
American Steel & Wire Division of  
United States Steel .....56 & 57  
Amical Equipment Company .....117  
Anderson & Co., Inc., Geo. G. ....122  
Anderson Equipment  
Company .....118, 123  
Asphalt Institute, The .....54 & 55  
Atkinson Company, Guy F. ....122
- Barber-Greene .....Third Cover  
Barco Manufacturing Co. ....101  
Bethlehem Steel Company ..... 3  
Bonded Scale and Machine  
Company .....116  
Bros Incorporated, Road  
Machinery Division ..... 84  
Browning Manufacturing Co. .... 99  
Bucyrus-Erie Company ..... 16  
Burrell Construction & Supply Co. 121
- Call, Inc., Ray C. ....121  
Caterpillar Tractor  
Co. ....34, 41, 42, 43, 44  
Chain Belt Company ..... 70  
Chain Belt Company .....113  
Chapin Cylinder Head Co. ....117  
Chevrolet Division of  
General Motors .....48 & 49  
Chrysler Corporation,  
Dodge Division .....14 & 15  
Chrysler Corporation, Industrial  
Engine Division ....Second Cover  
Cleveland Trencher Co., The .... 6  
Cold-Mix Inc. ....116  
Colorado Fuel and Iron Corpora-  
tion-Wickwire Spencer Steel  
Division ..... 7  
Columbia-Geneva Steel ..... 27  
Concrete Materials & Construction  
Company .....119  
Conmaco, Inc. ....114  
Constructors Equipment Co. ....115  
Coogan Gravel Co. ....113
- Dixon Valve & Coupling Co. ....103  
Duff & Co., Inc. ....117  
Dukehart-Hughes Tractor &  
Equip. Co., Inc. ....121
- Eaton Manufacturing Company,  
Axle Division ..... 53  
Eighmy Equipment Company ....121  
Eimco Corporation, The ..... 26  
Euclid Division of  
General Motors .....82 & 83
- Famalette Equipment Co., Frank 116  
Fidelity and Casualty Company of  
New York, The ..... 28  
Fishel, Bill .....120  
French, James C. ....119, 121  
Frink Sno-Plows ..... 94  
Frink Sno-Plows of Canada, Ltd. . 94
- Fuchs-Clayton Machinery  
Company .....115  
Fulton Equipment Co. ....114
- Galion Iron Works & Mfg. Co. ... 11  
Garr, Mel .....123  
General Construction Co.  
(Alberta) Ltd. ....122  
General Sand and Stone Corp. ...120  
Goodyear, Truck Tire Dept. .... 5  
Green Bros. Truck Sales Inc. ....123
- H. & L. Construction Co., Inc. ...120  
Harrison & Company, Jack .....116  
Herring & Son, Inc., Geo. B. ....116  
Highway Equipment  
Company .....96 & 97  
Hotel Bellerive .....124  
Hotel New Yorker .....124  
Hough Co., The Frank G. .... 33  
Huber-Warco Company ....30 & 31
- Illinois Contractors' Machinery,  
Inc. ....119  
Indiana-Ohio Pipe Co. ....114  
International Harvester Company,  
Construction Equipment  
Division ...21, 22, 23, 24, 66 & 67  
International Harvester Company,  
Drott Division .....68 & 69  
International Salt Co., Inc. .... 25  
Iowa Manufacturing Co. .... 17
- Johnson, A. S. ....122  
Johnson Brothers .....121
- Kent Piling Co., Inc. ....120  
Koffler Sales Corp. ....123  
Kolman Manufacturing Co. ....114
- L & L Surplus .....123  
Layman & Seils .....123  
LeTourneau-Westinghouse  
Company .....74 & 75, 77  
Lima Works, Construction Equip-  
ment Division, Baldwin-Lima-  
Hamilton Corporation ..... 62  
Link-Belt Speeder Corp. .... 29  
Lubrecht, III, William .....118
- Mack Trucks, Inc. .... 90  
Mack Trucks of Canada, Ltd. ... 90  
MacNeal, Inc., Donald B. ....118  
Mahoney-Clarke, Inc. ....119  
Maintenance Co., Inc., The .....119  
Malcolm & Co., Carl G. ....118  
McCanna Supply Company ....120  
McDowell & McDowell .....122  
Miller Equipment Co. of Detroit .121  
Miller Machinery, Inc. ....115  
Mining Contractors, Inc. ....119  
Mississippi Valley Equipment Co. 118  
Monarch Road Machinery  
Company .....110  
Mulzer Brothers .....113  
Mutual Truck Parts, Inc. ....120
- Noble Company ..... 12  
Northwood Stone & Asphalt Co. ...122
- Petzold Equipment Co., The ....113  
Portland Cement Association .... 73  
Powell, Jim .....117  
Priester Machinery Company, Inc. 120
- Ram Equipment Co., Inc. .... 76  
Ray-Brooks Machy. Co. ....114  
Read Standard, A Division of  
Capitol Products Corporation .. 10  
Reo Trucks, Reo Division, White  
Motor Company ..... 61  
Rhian, A. J. ....118  
Rockwell-Standard Corporation .. 13
- S & K Construction .....116  
Salem Tool Co., The ..... 85  
Seaboard Equipment Co., Inc. ....123  
Servicised Products Corporation .. 32  
Southeastern Brokerage Corp. ....123  
Southern Machinery Company,  
Inc. ....115  
Springfield Blacktop, Inc. ....113  
Standard Steel Corporation .....107  
Stolar, Frank .....120  
Stoody Company ..... 50  
Sweeney Tractor Co. ....114, 122  
Swenson Spreader & Mfg. Co. ...111
- Tacoma Junk Co. ....119  
Tennessee Coal & Iron ..... 27  
Texas Company, The--  
Asphalt Division .....Back Cover  
Texas Company, The--  
Lubrication Division .....8 & 9  
Timken Roller Bearing Company,  
The ..... 18  
Tinkler Equipment Co. ....120  
Tractor & Equipment Co. ....116  
Troyer Equip. Co., Stanley B. ....116
- Udelson Truck Sales, Inc. ....118  
Unit Crane & Shovel Corporation 78  
United States Steel Corporation .. 27  
United States Steel  
Export Company ..... 27  
United States Steel Supply ..... 27
- Vandeventer Auto Sales .....120  
Vets Distributing Co. ....123
- Walsh Construction Co. ....115  
Warren-Knight .....110  
Waters Supply Co. ....117  
Wenzel Machinery Co. ....114  
Williams Mfg. Co., Hugh B. .... 91  
Winer Motors, Sam .....122  
Wisconsin Motors Corporation ... 93





One of the new low-cost Barber-Greene Batch Plants in operation. Available in both 1000 and 1500 lb. sizes, these new plants include many years-ahead features.

## two new low-cost Barber-Greene Batch Plants with advanced big-plant features

Write for information on these two new profit-building batch plants.

### Many advanced features in new low-cost batch plants

Incorporating job-proved advantages of the famous Barber-Greene Batch-Omatics, these two plants also have many new features, including:

- **New Batchometer Asphalt Metering System** automatically meters preset quantity of asphalt to pugmill for each batch.
- **Dyna-Mix Pugmill** for faster mixing, more uniform coating . . . long life, easy maintenance.
- **Quick, Easy Erection** with three-unit design: screen and bin section; weigh-hopper and pugmill section; base section. Tapered pins guide sections into place . . . automatically align all bolt holes.
- **3½ Deck Vibrating Screen**, with 40 sq. ft. of area, gives top capacity for each plant and for the full range of asphalt mixes . . . integral part of bin section for easier erection. Four bins are standard—not extra.
- **Optional Hydraulic Controls** for easier operation . . . relieve operator of manual exertion; easily converted in the field.
- **Hydraulically Operated Pugmill Discharge Gate** provides instant discharge of mix . . . eliminates segregation. No time wasted between batches.
- **Other Advantages Include:** easier maintenance; complete line of accessories, including fines system; combined overflow chutes; scavenger dust system.

58-44-A

# Barber-Greene

AURORA, ILLINOIS, U.S.A.



CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

... for more details circle 238 on enclosed return postal card



(Photos by Stewart's for Exchange National Bank)

View of Air Force Academy from a helicopter. Main buildings of Academy in background, at foot of Rampart Range of the Rockies.

# U.S. Air Force Academy

COLORADO SPRINGS, COLO.



Its network of roads is paved with durable Texaco Asphaltic Concrete



CONTRACTOR - Peter Kiewit Sons' Company, Denver, Colo.

Although it is interested primarily in air transport, our new Air Force Academy could not function efficiently without its network of more than 50 miles of 4-lane and 2-lane roads.

The wearing surface, base and subbase constructed on these roads provide a pavement which is flexible from top to bottom. It consists of a 6-inch gravel subbase, covered by a 4-inch crushed stone base. After the base is primed with a medium-curing Texaco Cutback Asphalt, it is topped by a wearing surface of resilient, rugged Texaco Asphaltic Concrete 2 to 2½ inches thick.

Thanks to the flexible character of this type of pavement, it maintains complete contact with the supporting subsoil at all times. This is why flexible paving is able to withstand heavy traffic longer than rigid paving and at a lower upkeep cost.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the road builder a wide choice of pavement types. These range from heavy-duty paving for Interstate Highways to inexpensive asphalt surface-treatments for suburban residential streets. Helpful information on all types of asphalt construction for roads, streets, airports and parking areas is supplied in two free booklets. Write our nearest office for copies.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York  
 Boston 16 (20 Providence St.) • Chicago 4 (332 So. Michigan Ave.) • Houston 1 (720 San Jacinto St.)  
 Jacksonville 1 (P.O. Box 749) • Denver 1 (P.O. Box 2100) • Philadelphia 2 (1411 Walnut St.)  
 Richmond 11, Va. (P.O. Box 1379) • Minneapolis 3 (Groveland Ave.-Clifton Pl.)



# TEXACO ASPHALT

... for more details circle 283 on enclosed return postal